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Staff Work and Administration

A general officer has set down some thoughts that are a result of years of thought and experience

PERHAPS 90 per cent of our misunderstandings and unfortunate and disagreeable experiences in the Army are due to poor staff work and administration, and not to deliberate intent on the part of anyone.

Administration and staff work of the highest type result, as a rule, only from that rare combination that is found in an officer who has not only served in the lower grades but who has also, during that service, studied carefully and analyzed the reasons for the success or otherwise of the commanders, and their staff officers, under whom he has served. But even such officers could make much improvement if they would occasionally devote a few moments to self-examination.

While good administration and staff work require a knowledge of law and regulations, especially is it necessary to appreciate that the duty that we perform is one of trust. We are not administering our own affairs, but those of our country. To use this power arbitrarily, by being unnecessarily harsh and making cruel decisions based upon personal whim instead of upon the good of the service, cannot be too strongly condemned. Rights and privileges of others must always be considered, and can properly be set aside only when they conflict with the always paramount rights and interests of the Service. It might even be questioned whether a commander has the moral right to deny a request of a subordinate unless its approval would not accord with the letter or spirit of law or regulations, or would affect adversely the good of the Service or the rights or privileges of some other individual or organization. The martinet has no place in our Service. Discipline, it must be remembered, means more than prompt obedience to arbitrary commands and orders. True discipline may reasonably be described as being that amount of restraint it is necessary to impose upon individuals in order to bring about team work or to preserve unimpaired to the maximum the rights and privileges of the greatest number.

Two methods of administration exist in our Service. In one the commander evolves policies based upon his intimate knowledge of affairs gained through contact with his troops and subordinate commanders; in the other he arrives at his conclusions and decisions through contact with his staff only. The first method is eminently correct. War Department orders and Army Regulations

encourage it in every possible way; under it the commander commands. The second method, which leads to an undue control of staff officers over subordinate commanders, cannot be too strongly condemned; under it the commander deludes himself into believing that he commands, but the fact is that his staff commands. A commander is a failure who does not from personal contact know his subordinate commanders and their problems and difficulties. If such a commander seems to have success, it is because his usurping staff has met the situation.

The commander, with the assistance of his staff, controls the command and so coordinates its efforts as to secure unity of action. He makes the basic decisions, but the preparation and execution of the details are the work of a well-organized and properly operating staff.

Whenever the size of a command requires a staff of two or more members, a division of work is necessary; this, when reduced to writing or expressed graphically, is known as an organization chart. The chart should be so clear that a person examining it can make an accurate analysis not only of the organization itself but also of the work that the organization is called upon to perform. Proper administration demands that commanders of units, however small, keep on hand at all times such organization charts.

In large commands, the commander is provided with an executive officer or chief of staff. This fact enables the commander to divorce himself from the details of administration and to use his time in inspections, study, and many other important duties. The duty of a chief of staff is clearly indicated in the National Defense Act: "The duties of the General Staff with troops shall be to render professional aid and assistance to the general officers over them; to act as their agents in harmonizing the plans, duties, and operations of the various organizations and services under their jurisdiction, in preparing detailed instructions for the execution of the plans of the commanding generals, and in supervising the execution of such instructions." This provision must always be considered in connection with the later one that "hereafter members of the General Staff shall be confined strictly to the discharge of duties of the general nature of those specified for them in this section and in the Act of Congress approved February 14, 1903, and they shall not be permitted to assume or engage in work of an administrative nature that pertains to established bureaus or offices of the War Department, or that, being assumed or engaged in by members of the General Staff Corps, would involve impairment of the responsibility or initiative of such bureaus or offices or would cause injurious or unnecessary duplication of or delay in the work thereof." The intent is clear—no bureau shall be interfered with, but when more than one bureau is concerned, General Staff officers, acting as agents of the commanding general, harmonize plans, duties, and operations.

As the established head of all general staff sections, the chief of staff (in the smaller organizations the executive officer) must have the full confidence of the commander on the one hand, and on the other full knowledge of operations of the headquarters. As a general rule this requires that practically all matters, certainly all important matters, must reach the commander through or in the presence of his chief of staff;

in no other manner can a commander assure himself that during his necessarily frequent absences from headquarters will his policies be known sufficiently well to his chief of staff or executive to ensure proper and prompt action.

The executive, by whatever title he may be designated, is the responsible head of the staff and directs the work. He so organizes and supervises the work of the staff that there will be neither friction between sections nor usurpation of authority on the part of anyone. His organization should be such as to free him from attention to details, thus enabling him to visit throughout the command and study pending or proposed operations, plans, or training.

Staff officers must have direct access to the commander at all times. It must be remembered, however, that in a large command comparatively few questions of major importance arise that do not involve more than one staff section. These questions, having been coordinated by the appropriate general staff officer acting in accordance with the commander's general instructions and policies transmitted through the chief of staff, leave for a staff officer to discuss with the commander few questions that do not properly require the presence of not only more than one staff officer but also of an assistant chief of staff and the chief of staff.

Having always in mind the broad division of "command" and "staff" responsibility, the executive must so conduct all routine business that the time and efforts of the commander may be devoted to the more important matters. In the temporary absence of the commander, the executive makes such decisions as the occasion demands, always being guided by general instructions and policy or by his intimate knowledge of the commander's wishes. Upon the commander's return to headquarters the executive at once informs him of all important matters that have transpired during his absence. If the commander prefers to spend most of his time outside of the office, the executive, as the commander's other half, devotes most of his attention to the office itself; while, if the commander prefers office work, the executive should be outside to keep his chief informed of the condition of the garrison and command.

The executive is the commander's other self; each must possess all information that the other does. When this general rule is disregarded, it usually happens that "wires become crossed" and efficiency suffers. Unless he enjoys the full confidence of his commander, the executive cannot efficiently perform the duties of his position. The executive keeps in mind the responsibilities of the commander and sees that the latter is informed promptly on all large questions. On the other hand, he sees that the commander is not bothered with unimportant details. The commander decides all important questions, and the executive is his principal assistant in outlining the will of the commander to the other staff officers and subordinate commanders.

The following matters should be brought without delay to the attention of the commander: matters of importance which require prompt action not covered by existing policies or instructions; communications that allege neglect or dereliction on the part of commissioned personnel; disapproval by higher headquarters of recommendations made by the headquarters; appeals from decisions made by the headquarters; correspondence or proposed cor-

respondence conveying even a suggestion of censure; matters wherein there is a disagreement among the staff officers concerned; when there is doubt as to the procedure or action to be taken, or when there is no adopted policy covering the case; when it is contemplated making a general statement concerning the policy of the headquarters; when there is involved a conflict of authority or a serious difference of opinion. In all other cases the usual practice is for the executive to cause to be prepared the action that to him seems to be the correct one and then to present it to the commander in this form. There is no other known method that allows the commander to study a recommendation of his staff, knowing that it has been swayed in no way by an endeavor to conform to a preconceived idea of what it is believed the commander wishes done. The larger the staff the more certain it is that many of the details are not as intimately known to the commander as they are to his staff officers. It is usual for the commander to make known his final decision only after the executive has presented to him the completed case, for at no other time can he be sure that all fundamental details connected therewith are either before him or have been studied by his appropriate staff officers.

Cordiality and mutual confidence must mark the relations between the commander and his staff. Each must be loyal to the other. Loyalty and generosity should mark the feelings of each member of the staff for the other, and each should always manifest a keen sensibility for the feelings and rights of others. A staff must show a courteous, considerate, and helpful attitude toward the staffs of subordinate commands and take pride in the existence of harmonious relations with those of the higher command. Courtesy among military men is indispensable to discipline, and courteous, dignified correspondence is a prerequisite to efficient and harmonious administration. No amount of provocation can excuse loss of dignity or the use of harsh, brusque, retaliatory phraseology in communications from any headquarters. Correspondence conveying even a suggestion of censure should be acted upon by the commander personally before being forwarded.

Staff work means more than pushing papers across a desk. It bestows on no one the privilege of interfering with the duties and prerogatives of subordinate commanders. An efficient staff officer will never act on a paper without visualizing why it is before him and the use to be made of it. In a headquarters nothing should be reduced to writing, except in pencil memorandum form, that is not necessary for file or for future reference, and nothing without value should be filed. Instances of thoughtless violation of this sound principle are continually found in the filed records of officers at headquarters, from the highest to the lowest. The files of a headquarters should be the reposing place of papers of important record and not that of papers for which no other easy manner of disposal comes to mind. A staff officer in charge of a record file is responsible that no communication is filed until all concerned at the headquarters have been made acquainted with it.

There are certain papers that should never, except in emergency, be finally acted upon by anyone except the commander himself, and in the excepted cases he should be informed as promptly as practicable of such action. Such

papers are those that involve the good name of an officer, and indebtedness cases come under this heading; the good name of an organization; the status or convenience of a general officer; correspondence with the War Department that contains important recommendations or requests; correspondence with corps area commanders or commandants of service schools on matters of importance; letters to senators, congressmen, and other important individuals; correspondence concerning war plans; efficiency reports and communications expressing opinions concerning them. While in some of the last named cases a commander will not desire personally to sign, it is, however, imperative on account of the very important use made of efficiency reports by the War Department that such reports and indorsements thereon be signed in person and not delegated. At many headquarters communications signed by general officers are, as a courtesy, at once presented to the commander.

There is a widespread feeling that many staff officers do not know how far it is proper for them to go in the matter of using their commander's name when issuing orders and instructions. This is not only embarrassing at times, but also, on account of the occasional innocent misuse of authority on the part of staff officers, leads to dissatisfaction in commands. Stated in the broadest possible manner, the authority of a staff officer to issue orders and instructions in the name of a commander extends to three cases, and to them only. Any action of a staff officer that does not fall under one of these heads is not only an improper action but is also illegal. The cases are as follows:

1. When a commander has given certain specific instructions to a staff officer, the actual issue of appropriate orders or instructions will properly be effected in the name of the commander by the proper staff officer, verbally or over his own signature.

2. When a commander has decided upon a policy to be followed, and has indicated it to a staff officer, all future questions that fall squarely under that policy should be decided by the proper staff officer without further reference to the commander, and the order issued, verbally or over his own signature and in the name of his commander. Where reconsideration of decisions is desired, or where an appeal is made, it should, except in case of emergency, be submitted for further consideration of the commander.

3. Where a commander has specified an object to be attained, or has outlined a plan for the attainment of an object, all detailed orders and instructions necessary to give effect to the commander's decision may be given in the commander's name by the proper staff officer, verbally or over his own signature, and without further reference to the commander.

To meet an unforeseen contingency or emergency, when immedate action is required and the views of the commander cannot be obtained, the staff officer should be prepared to tell the senior line officer with whom he can get in touch the action he believes the regular commander would desire. The staff officer must realize that there is a commander who can be reached, and even though this commander be of junior grade the decision is his responsibility and not that of the staff officer.

To summarize, a staff officer has no authority to command. All plans, policies, and basic decisions must be adopted or authorized by the commander before they are put into effect. When the commander has approved any plan, policy or decision, his staff officers have authority to make decisions and issue

orders in furtherance, but not contrary to or in amendment thereof.

Staff officers should be on friendly terms with the commanders of the troops and show a desire to aid them in every legitimate way. They must visit the troops frequently and learn from actual contact the condition and needs of units. When this method is followed, troops soon feel that any action ordered has taken into account the situation confronting them.

Staff officers observing troops should so conduct themselves as to invite a sincere welcome. When visiting troops, the staff officer should first call on the commander, and it is also desirable that when he leaves he report to the commander the results of his observations. This not only complies with the fundamental principles of courtesy and consideration, but also gives the staff officer an opportunity to adjust his personal observations with a statement of conditions by the unit commander visited. He should report only facts, and should avoid criticism and meddling with responsibilities of subordinate commanders.

A word regarding the formulation of orders may not be out of place. At a certain point in the proceedings of one of the most completely and efficiently organized institutions on earth there appears a so-called "devil's advocate" who questions from all possible angles both the necessity for and the desirability of taking the action under consideration, and it is only after all presented objections have been fully answered that final action is taken This general idea might with much profit be followed by military authorities. Unnecessary orders and instructions are never issued from an efficiently operated headquarters.

It might appropriately be added that orders and instructions should be expressed in concise language, and that the slavish use of catch words and meaningless expressions should be avoided. At our general and special service schools we spend many hours teaching officers how properly to formulate tactical orders. The method consists generally in insisting on a logical arrangement of subject matter, in using concise language, and in omitting all that is not positive and definite. These same rules should all be followed in drafting instructions having to do with matters of routine administration. After having completed the draft of an order or instructions, an excellent plan is to review it once more with the idea of eliminating every word that does not add to its meaning.

On account of the psychological effect, a series of "dont's" and "it is forbidden" should be used sparingly. "Trainees will not go on the upper deck" can often be made to read, "Trainees will remain on the lower deck."

A word should be used in its proper sense. A headquarters, for example, consists of the office of the commander, the office of the executive, the offices of the adjutant, quartermaster and numerous others. "Report will be made to this headquarters" would seem to have more in its favor than "Report will be made to these headquarters" and yet the latter is more generally used.

Practically never is an unnecessary word or meaningless expression to be found in special orders issued by The Adjutant General of the Army, and they may well be taken as models by all who strive for perfection.

American Militarism a Myth—Protective Preparedness a Necessity

CAPTAIN C. W. CHRISTENBERRY, Infantry

PART I

This is the first of two articles that the author wrote after having spent last year on a civilian status in the east. During that time he made a special study of the question of preparedness as related to the average civilian mind. By the trial and error process, he has compiled a paper which met with encouraging success in reaching the lay mind. It will be noted that the author does not quote military authorities—past or present—to substantiate his position, but convicts the defendant by his own mouth. The results of his observations and work will be valuable to officers who may be thrown much into contact with civilians.—EDITOR.

WE ARE all pacifists, in a general sense. That is, we all desire peace. We have tasted of its blessings in securing to us life, at least some liberty, and the pursuit of happiness, and we do not want to part with it.

In a stricter and more common use of the word, however, pacifists fall into three general classes:

First, those persons whose political tenets justify them in planning and working with deliberate intent to weaken the defensive forces of this nation, in order to smooth the path for that political and social upheaval they believe to be so necessary to world welfare.

Second, those who believe that defense of country through military means is never justifiable.

Third, those who believe in the fullest cooperation in the defense of their country, but who want to avoid conflicts whenever possible, and who oppose all forms of military preparedness, on the assumption that such activity leads or tends to lead to war.

It is to the latter group, through military men who may come into contact with them, that these pages are addressed.

To approach the members of the first classification upon this or any subject akin to patriotism would be ridiculous. They might admit the truth of the facts cited, and then become all the more antagonistic, since their chance of achieving their ends would be minimized by the very reasonableness of our position. This group is, as Will Irwin says, comparatively small, and that is fortunate.

To seek an audience in the second class is usually a waste of time. Their gaze is altogether too high in the realm of *world* salvation to glance downward even for a fleeting view of the less inspiring scene of *national* problems. These people are sincere enough, as a rule, but their foundation rests mainly upon generalities, to the exclusion of logic. Hence they push eagerly upward towards their internationalistic air-castle, brushing aside as obsolete all tools of nationalism, yet never thinking to look back to see whether the old globe, with its many localized ailments, is able to stand the pace. This vague

creed has only a few, but very vociferous, followers; they claim charter membership in the professional pacifist group, and are usually financially supported by some organization or periodical of like faith, thus permitting them to give practically their entire time to their high cause—very high, in fact, as it goes over the heads of most of us.

The third division fortunately includes the great majority of our so-called pacifist element. It is here that sincerity, loyalty, and honesty of purpose are found. Their opposition to preparedness ordinarily comes from the fact that their time is consumed with other interests, leaving neither hours nor inclination to think the problem through. Thus they permit an adverse opinion gradually to crystallize, based mainly upon occasional lectures and articles, sometimes strengthened by an indefinite distrust of things military because of their abnormal prominence during war time.

The lectures and articles that come to the attention of these people are too often built around epigrams or catch-words, making their principal appeal to emotion or prejudice. The king of these catch-words is *militarism*. It is used in a most random and indiscriminate manner, being applied to every form of military activity, however moderate or however extreme.

WHAT IS MILITARISM?

Let us try to arrive at the modern meaning of the word, and then apply our definition to the country and discover whether or not we are cursed with an institution or a national tendency that befits the term. If such a thing is found to exist, we must help stamp it out, for those who employ the word do so in such a grave, awesome, and fearful way that militarism—whatever it is—must be terribly unwholesome, uncomfortably close, and ripe for speedy annihilation.

Webster's New International Dictionary defines it thus: "1. A . . . disposition to provide for the . . . safety of a nation . . . by maintaining *strong* military forces. 2. The spirit . . . which *exalts* the military virtues and ideals and minimizes the defects of military training and the cost of war and preparation for it." (Italics are mine.)

Were we to accept this as the present general meaning, it would be difficult to associate militarism with any cult, movement, or institution of the United States. As this paper purports to show, there are nowhere in America organized advocates of a *strong* military establishment; nor is there to be found any material effort, concerted or scattered, to *exalt* ideals of the military above those of the civil.

The present connotation of this ugly word is only about half completed by the dictionary. The growth and domination of Prussian Junkerdom after the Franco-Prussian War, and its culmination in the World War, have forever colored the word "militarism" with the stain of extreme despotism. So that now, whenever we apply the term to an institution or a teaching, we definitely attribute thereto the spirit of the impending dangers of a militaristic autocracy. This unholy atmosphere surrounds the word as unmistakably as if it were permanently a part of it by special definition.

Now let us examine our social structure for proof of the presence of militarism, accepting as adequate the Webster-Kaiser conception of the word.

Is militarism a child of capital? Capital from time immemorial has made an ideal scapegoat, especially for those of us who are not capitalists. Today, many of those American citizens who have unconsciously allowed a vague fear about militarism to grasp them, feel that "somehow or other" capitalism and its boon companion, imperialism, are back of the whole thing. Since this fear is more commonly based upon opinion and emotion rather than upon facts and reason, they do not recall the indissoluble union between development and capital; that capital is international in character and goes where it is needed as naturally as the working of the law of supply and demand. They forget that Canada, Australia, the Argentine Republic, and even our own country in its pioneer days obtained their first huge strides of progress through British capital. The first-named two have prospered rapidly with this indispensable aid and remain as self-governing parts of the empire solely upon their own choice. The Argentine Republic, mainly through English and Italian money, has become the richest South American country—and this without a single treaty-string being tied to the benefits.

Our own capital need not be ashamed of all of its record, despite the fact that it is now quite the thing to speak glibly of our imperialistic program, past or present. American supervision and investment in Cuba have made that island rich and prosperous, as well as one of our loyal supporters. Porto Rico, Santo Domingo, and Haiti have, under this same miscalled capitalistic supervision, developed rapidly, built up sound finances and enjoyed a freedom previously unknown to them. Panama is now peaceful and forward-moving, completely freed of yellow fever and prior chronic insanitation. The Hawaiian Islands, which twice presented their request for annexation to the United States before its approval, are speedily approaching a condition favorable to statehood.

The foregoing examples are listed not in any sense as a blanket defense of all investments and foreign exploitation of "Big Business," but only in order to indicate that capital is not, *per se*, a bad thing, habitually fostering the spirit of Mars and backing the maintenance of a huge standing army. It is, on the contrary, a necessary tool of progress, without which labor is helpless. Like any other inanimate object, it takes its cue from the thought behind it, and therefore has been employed in both worthy and unworthy enterprise. Whenever capital joins hands with greed, it cannot be denied that capital is then associated with the greatest cause of international disputes.

Even then there is no discoverable motive that would cause capital to desire militarism. One popular definition of "imperialism" is "a large nation acting towards small nations in a manner that it would not presume to act towards other large nations." Therefore, a country determined to be imperialistic and dollar-diplomatic would be so whether her armed forces were large or small. The very countries in which "Wall Street and Company" are accused of stirring up trouble are those that would not require a large army as a conquering force.

A CHILD OF EDUCATION?

If American capital has not planted the seeds of militarism, it may be, as some critics claim, that this vicious

scheme has firm roots in our educational system. Let us, as far as possible, push preconceived ideas to the background, and examine the facts.

Education's link with the nation's preparedness program is the Reserve Officers' Training Corps, popularly known as the R. O. T. C. units. The presence of one of these units at a college or a university means that military training holds a minor place in the curriculum, and that it is included therein upon the decision of the school authorities. No one else decides the matter. The actual authority comes from our own representatives in Congress, who in 1920, after long hours of debate and deliberation, amended the National Defense Act so as to make possible the establishment of the R. O. T. C. system.

As thus amended, the Act now provides for three parts to our national defense: first, a small Regular Army; second, the National Guard, called into Federal service only in case of emergency; third, the Organized Reserves, whose members, except in rare cases, see no service and receive no pay except for short fifteen-day periods in summer camps.

The Organized Reserves draw their personnel from business men who are both patriotic and peace-loving, but who recognize that a reasonable state of preparedness is in this age absolutely essential. They do not sacrifice valuable time to military training because of any hope or fear of war; but they are agreed that, if this undesirable status should unavoidably come to our people, the bitter lesson of the World War should not go unheeded, and that we shall not again have to send untrained men to the front lines, thus increasing the loss of life and prolonging the length of the carnage.

The last thing in the world that this group desires is war! As one of the high officials of a nationally known food-products company said to the writer, in referring to the recent Mexican situation, "War would certainly work havoc with our firm now; it would mean not only the loss of promising young executives but also a most serious setback in our programs of growth and advertisement. And, if I had to go myself, it would mean a ruined career." Yet this gentleman is an active officer of the Reserve Corps; he, like many others, has become so only after a careful consideration of the contribution of that body to permanent peace.

It was to replace the natural losses in the Officers' Reserve Corps that Congress authorized the creation of R. O. T. C. units at selected schools and colleges. There is nothing sinister or militaristic in this act. So long as any degree of national defense is necessary, it follows in clear logic that the officer material should be drawn from among young men of sufficient intelligence and education to perform efficiently the duties of leadership involved.

The critic here interrupts to say that it isn't the end of national protection that is so bad, that the main objection lies in the use of the tools and skills of warfare by our youth, thus building up within their minds an attitude of tolerance for war. And a few of these objectors claim that, as the instruction is administered by Army officers, it follows that distrust of other nations is fostered and the inevitability of war is stressed.

That such a conclusion could be reached, in view of the true facts, is truly amazing. Yet these and other false premises have been accepted and then added to by imagination, misstatements, and prejudice, until many of our

worthy teachers and preachers have allowed themselves to be led into a near frenzy over the matter. And a few of them—if we accept literally their speeches and articles—have actually reached the conclusion that, unless they act quickly and effectively, our colleges will soon become little less than nests for the vulture of militarism.

Let us see what the facts actually are. In the first place, this type of critic almost invariably fails to differentiate between persons who advocate protective preparedness and those who want war—if there are any of the latter. He is totally blind to the fact that the two classes have nothing in common, are not even third cousins. In the second place, the objecting zealot swallows whole the delusion that the man in uniform—the Army officer—wants war or in any way stands for war. He does not desire flying bullets and deadly gas fumes any more than the fireman longs for falling walls and destructive flames. He knows too well the grim horror of the thing; and his study of past conflicts reveals to him the utter futility of the institution as ever becoming a positive factor in the ushering in of a lasting peace.

What is more germane to the issue in education, the military instructor does not either explicitly or implicitly teach the R. O. T. C. student the desirability or the inevitability of war. There is nothing mysterious or hidden in what the officer is supposed to, and does, teach the young cadet. He has no secret instructions from the War Department to create "killers and militarists" out of the next generation's leaders.

In fact, those who become acquainted with the military instructor of the school will very likely discover him to be a normal person who fervently desires the present peace period to remain in *status quo*. It is probable that he has a wife and children whom he loves and enjoys in the manner of the average citizen. His friends and interests coincide with those of the community. He owns the customary static-ridden radio, meets with average promptness the installments on his automobile, and more often than not is a regular attendant at the same church that the president and many members of the faculty attend—or used to attend before the Psycho-Biology Club changed its hour of meeting to 11 o'clock Sunday morning.

Thus it is disclosed by direct contact that the officer loathes killing, individual and wholesale, as much as any other parent or professor. The propagandist seizes upon a lone sentence or phrase in the drill regulations and seeks to prove that the contrary is true. Like the scriptural quoter of isolated verses, he can thus prove anything. Drill regulations are written primarily for use in war and therefore do not mince words in teaching the use of its weapons. This does not imply that the "war atmosphere" of this or any other documents is carried over into R. O. T. C. training.

Let me not be misunderstood. I suspect there are negative values in military training as well as positive values. This is true of Latin, history, and what not. The ability of the teacher is a material factor; and we have some poor instructors in R. O. T. C. work as in most other subjects. When wrong values are stressed, improper attitudes are instilled, and freethinking is stifled, then harm is bound to result, whatever the course being taught.

The point is, the system should not be condemned because of the mistakes of a few, otherwise psychology should be outlawed because several re-

search men, marvels in their special lines of investigation, fail completely in the technique of sharing as instructors their knowledge with the students.

Sometimes we have believed a falsity so long that our habit-forming instincts militate against a change of opinion, however valid the new evidence. After so long a time, the attitude towards a subject becomes very dear to us—in fact, a real part of our entity. We are apt to value it over and above its intrinsic worth, though it were true. This is just what happens frequently when the statement is made to a member of one of the self-appointed committees-against-militarism in schools, that first-hand evidence strongly indicates that military instructors stand not only for permanent peace but against "militarism" as well.

Even if these officers were inclined to stress unduly the importance of the military, they would find that the task of turning our youth into embryonic "Kaiser Bills" would be a huge, if not an impossible, task. Moulding the plastic thought of the young man into some specific pattern of philosophy, mathematics, or biology, seldom works smoothly, and never achieves the absolute. Why assume that he is so easily bent in this one instance of military training? And why fear that this training will make him militaristic? Can the skeptic cite a single specific instance of a young man who exhibits an approving or a defending attitude towards war, following his course in military science and tactics? The question may be a little unfair, since we are not privileged to know his exact thoughts. His actions, however, are a fair index; and we find that only about 4 per cent of these militarily trained young men continue to maintain contact in any manner with the permanent military establishment. They pass naturally to their respective civilian pursuits, and betray no evidence of being "military minded."

If no instances can be furnished for the debit side of the above question, there are plenty available for the credit side. In the Regular Army, where large numbers of young men pass through a practical educational system, there is always quite a high percentage of them, upon enlistment, who comprise a disgruntled, maladjusted, discouraged lot —many of them in a "the world owes me a living" state of mind that encourages self-justification and rationalization, and leaves them only a few steps removed from an attempt at a career of crime. A description of the system of educational and vocational schools of the Service cannot be included here. It must suffice to record that an encouraging part of this group invariably leave the Service, upon expiration of enlistment period, with improved habits, more stable characters, and healthier attitudes towards authority, country, and society.

This may sound Utopian to the one who has habitually judged the American defense system entirely from the reading of propaganda. The writer, however, served as casual officer of the Hawaiian Islands for over two years after the war, and, in the detailed handling of thousands of incoming recruits and a like number of outgoing discharged soldiers, had an unusual opportunity to study the subject. The position called for personal interviews, in order to place properly the new men and to record the improvements and the future plans of the discharged soldiers. The experience of this work, supplemented by other studies of the same problem in California, Texas, and Geor-

gia, has convinced at least one person that the great majority of men of the standing Army return to a civilian status far less of disorganizing forces, both nationally and internationally, than they were upon enlistment; and that if American militarism is anything more than a myth, it at least draws no advocates from this group.

"We learn to do by doing" is now axiomatic of the educational world. A few of the values thus obtained from military instruction have been found by actual observation to be: (1) the value of orderliness and punctuality; (2) the meaning of impartial justice; (3) the importance of cooperation, or teamwork; (4) a respect for proper authority; (5) alertness, neatness, thoroughness; (6) habit of judging on demonstrated merit; (7) development of the qualities of leadership; (8) improved physical condition and coordination; (9) a higher regard for sanitation and clean living.

It is admitted that the conclusion that these values accrue from this type of training has been reached by experience and observation, in lieu of testing. Empirical evidence, however, if sufficiently cumulative, is frequently accorded more weight than the results of tests, particularly where that evidence springs from observed comparison of two groups, one with and the other without the system in question. That the foregoing list of advantages has been uncovered in just this method relieves us, we believe, of the charge of conjecture and exaggeration.

A REAL NEED SATISFIED

There appears to be a felt need for extra-curricular benefits of a character building nature in the field of higher education. The young man comes all too often to the university from a home where irregular habits have been condoned, weaknesses overlooked, and social standards confused and only half formed. Arriving at the college campus, he finds that the air is laden with scholastic liberalism, with the emphasis upon scientific research and analysis of subject matter. In fact, he is very likely to feel himself engulfed in an atmosphere of realism and naturalism that tends to overshadow old faiths, ideals, and abstract qualities of character.

He plunges desperately into a godless philosophy, a behavioristic psychology, a history of sensuous Gladstones and drunken Washingtons, and a literature flavored with risqué Helens and rollicking Galahads. All well enough, maybe, if the youth starts with the proper poise and the mental age that will permit him to weigh, evaluate, reject, and retain. If not, the need of a stabilizer becomes urgent; and if the above-named benefits from military training are real, then the necessary counterpoise is already at hand.

EXPERT TESTIMONY

And they are real, if the leaders of our colleges that have tried the course can be credited. Brief quotations only can be given space here.

President Campbell of the University of California says, in part:

> If you are some day called upon to command men, as the head of a great railway system or as a manager of a commercial organization, the discipline you receive from military training will be extremely valuable to you. Men who would command other men successfully should first of all learn how to obey themselves.

President Brooks of the University of Missouri says:

> Success under the conditions of mod-

ern civilization depends upon cooperative effort to a common end. In no other department than military training have we so good an opportunity to give this important element of an education.

President Pearson of Ames has said:

We consider military work as now conducted at this institution a distinct asset to the school and to the young men who take the work. Too many of the young men who come here are awkward, careless as to their personal appearance, sluggish physically and mentally, and too often do not have proper respect for law and order. Work in military tactics puts a premium on neatness, requires proper carriage, promotes the coordination of mind and body, and generates proper respect for authority. In other words, it promotes alertness and precision and develops self-respect as well as respect for law and order; all of which are in the direction of efficiency, loyalty and citizenship.

Dr. John Leo Coulter of North Dakota Agricultural College, after years of close observation, decides that this training makes for accuracy in the discharge of duty, no matter whether large or small. He adds—to use his exact words:

It goes without saying that one of the tasks of the college is to train leaders for our modern complex civilization. I look upon the military feature as a necessary means to the accomplishment in its fullest measure of the ends and purposes of the college as a whole. . . I feel that the work not only greatly benefits the students, but makes for good citizenship.

To name all prominent educators in agreement with those just quoted is not possible. *The Grand Rapids Herald*, in June, 1926, recorded this fact: that out of the total number of college presidents who answered a questionnaire, ninety out of ninety-two considered military training of benefit "to the students, the colleges, and the country." And as for the democracy of the training, the leaders in education have been substantiated in their affirmative conclusion by such well-known thinkers as Cardinal Gibbons, Arthur T. Hadley, Alton B. Parker, Thomas A. Edison, the late Samuel Gompers, and Nicholas Murray Butler.

In view of such sound testimony, prejudice or ignorance alone appears to explain why these proved advantages are denied, and why fictitious and baneful results are ascribed. It is only by the most tortuous and serpentine of mental acrobatics that one can arrive at the conclusion that the few hours weekly in military training foster or create in the minds of the participants a desire for "self-expression in combat" or a belief in the inescapable necessity of force. Actual case proof is lacking, and always will be lacking. True, some men and women undoubtedly leave college holding the opinion that wars are inevitable, whether military training is or is not a part of the school curriculum. In fact, is not the student who is inclined to be pessimistic about mankind's past progress the more likely to reach this gloomy conviction of war's eternality from a study of history and anthropology?

A MEANS TO AN END

We hear, or used to hear, quite a bit about the martial atmosphere produced by drill and its equipment. What about the "martial atmosphere" of certain kinds of athletics, particularly football? We seldom find the players sitting around in chummy little groups between halves, drinking pink tea and begging each other's pardon for rough tackling. The game is one of severe physical conflict. Yet statistics would hardly support the stand that our grid-

iron satellites develop into our best thugs and cutthroats. Quite the contrary. Military training carries with it most of the advantages of athletics, without its major faults, for it includes mass athletics as well as organized drill; and it emphasizes teamwork, group participation, and alternating leadership, without that extreme personal rivalry that Dr. Thorndike, the noted educator, so strongly disapproves.

As Dr. Coulter stated in his remarks just quoted, this course of training, like most others of a college, is simply a means to an end. Now, we do not acquire "subwayitis" in utilizing that means of transportation to reach the Metropolitan Museum. Nor do we conclude that the child who bites off the head of an animal cracker, or who gleefully devours a candy-man, is the more likely to end up, in the first instance a bloodthirsty hunter, or in the second a cannibal or a murderer. If we are to conclude that the tools are in such constant danger of becoming in themselves the end, we are left in a most embarrassing position in the field of education. Fortunately, the working of the law of transfer of learning relieves us of much alarm on this point.

THE COMPULSORY FEATURE

"What I'm fighting," says another dissenter, "is the compulsory feature of military training in schools and colleges." In reality, there is no such thing as "compulsory military training" in the United States! The college authorities decide upon the curricula, not the War Department, or any "bogey-man" of militarism. The heads of our educational institutions are generally conceded to be men and women of sober thought and dependable judgment. They have the right, limited only by their charters, to make such rules as their long experience dictates. Sixty-six of these controlling bodies have decided that military training has in it sufficient advantages to justify its requirement of all able-bodied first-and-second-year men.

All colleges require certain courses; and all colleges have students who "kick" against having any prescriptions, whether it happens to be chapel attendance or freshman English. The easiest thing in the world to do is to incite the undergraduate's feeling against some particular requirement as curtailing his personal liberty. However, the lack of "compulsion" within our colleges is best revealed by this statement: if a young man does not want to include military training in his program, he is at liberty to choose one of the 426 institutions of higher learning that do not make this course a prerequisite to graduation.[1]

[1] In the October number the author will conclude his article with: (1) a brief examination of our governmental system for militaristic dangers and tendencies, (2) a justification of protective preparedness, and (3) an exposé of the "great American myth."

Retrospect

MAJOR FRANK B. JORDAN, Field Artillery

Being a series of outlines, of which the present article is the first, of the important battles of the American Civil War. The author makes no attempt at criticism but pictures events as nearly as possible as the participants saw or thought they saw them. The series is designed to meet the needs of the busy reader.

The Retrospect is couched as nearly as practicable in present-day military phraseology. In order to facilitate translation into modern terms, the author has inserted parenthetically, throughout the period of each battle, the approximate strengths of units expressed in modern equivalents (battalions of 800 men and companies of 200 men).

The reader should supplement the author's effort at translation into modern terms. He should bear in mind that the effective range of the Civil War musket was about 300 yards, as compared with a similar range of 4,900 yards for the most modern rifle and ammunition; and that a similar divergence obtains between the ranges of Civil War and modern artillery. He should not lose sight, too, of the differences in rates of fire, in speeds of means of transportation, and in range and development of means of communication. With these ideas constantly before one, military history throws a much clearer light on both events and methods of warfare.

I. FIRST BULL RUN

(July 16-22, 1861)

OPPOSING FORCES

Department of Northeastern Virginia (Brig. Gen. Irvin McDowell)		*Combined Confederate Armies* (Brig. Gen. Joseph E. Johnston)	
First Div. (Tyler)	12,800	*Army of Potomac* (Beauregard)	
1st Brig. (Keyes)		1st Brig. (Bonham)	4,300
2d Brig. (Schenck)		2d Brig. (Ewell)	2,400
3d Brig. (Sherman)		3d Brig. (Jones)	2,100
4th Brig. (Richardson)		4th Brig. (Longstreet)	2,500
Second Div. (Hunter)	2,500	5th Brig. (Cocke)	3,300
1st Brig. (Porter)		6th Brig. (Early)	2,600
2d Brig. (Burnside)		7th La. Inf	800
Third Div. (Heintzelman)	9,000	8th La. Inf	800
1st Brig. (Franklin)		Hampton Legion	600
2d Brig. (Willcox)		30th Va. Cav. (Radford)	700
3d Brig. (Howard)		Harrison Bn. Cav	200
Fourth Div. (Runyon)	5,400	10 Cos. Cav	600
1st N. J. }		Holmes' Brig	1,300
2d N. J. } 3-months		*Army of Shenandoah* (Johnston)	
3d N. J. } men		1st Brig. (Jackson)	2,200
4th N. J. }		2d Brig. (Bartow)	2,500
1st N. J. }		3d Brig. (Bee)	2,800
2d N. J. } 3-year		4th Brig. (Elzey)	2,200
3d N. J. } men		1st Va. Cav. (Stuart)	300
41st N. Y. }		33d Va. Inf	200
Fifth Div. (Miles)	6,200		
1st Brig. (Blenker)			
2d Brig. (Davies)			
Totals	35,900		32,400
	49 guns		42 guns

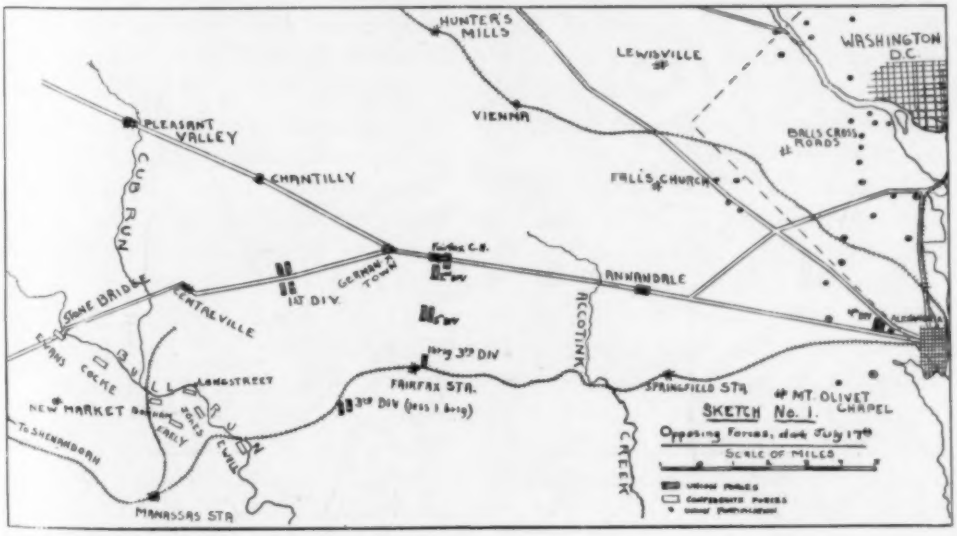
PRELIMINARY OPERATIONS

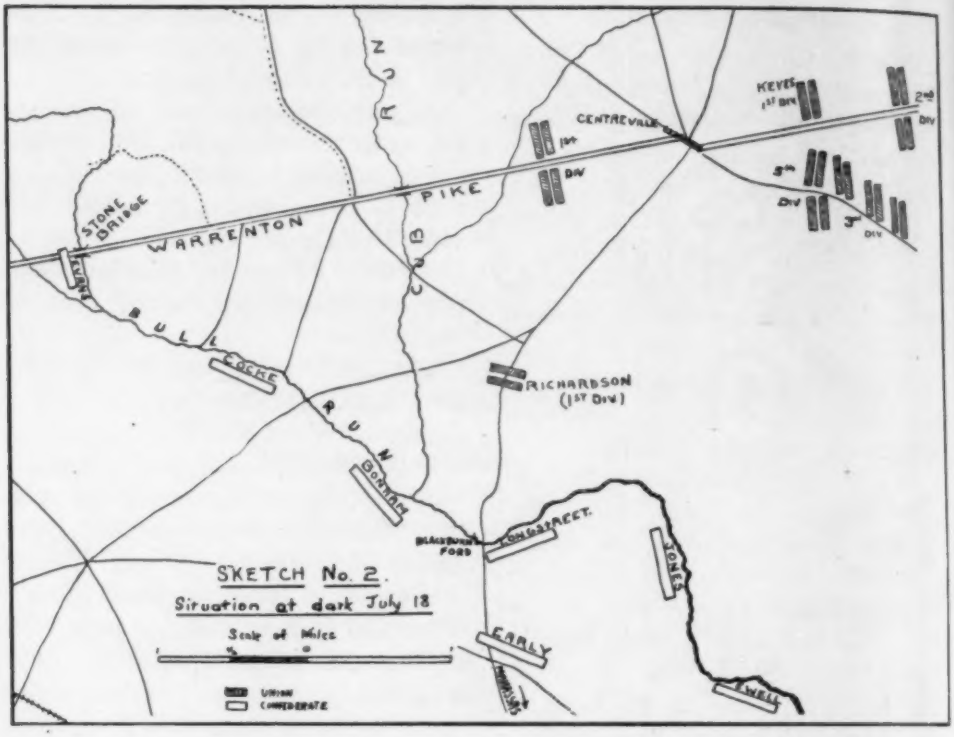
July 16. On the morning of July 16, McDowell, in conformity with a plan indicated by the General of the Armies, and hastened by the approaching expiration of terms of service of many regiments, moved forward from his lines (see Sketch No. 1) in the vicinity of Washington, with the objective of interposing himself between the forces of Johnston and Beauregard, the latter who held the general line Fairfax Station—Fairfax Courthouse, prepared to withdraw to the line of Bull Run.

July 17. The Union forces continued their advance, the Confederates withdrawing according to a prearranged plan without becoming seriously engaged, obstructing the roads as they fell back. By dark on July 17 the opposing forces were disposed as shown on Sketch No. 1. Gen. J. E. Johnston, then in the vicinity of Winchester, in the Shenandoah Valley, was ordered to join Beauregard with the "Army of the Shenandoah," and Holmes' Reserve Brigade was ordered up from the vicinity of Aquia Creek. The latter unit marched about 40 miles in three days; it arrived on the evening of the 19th, but after a day of rest was able to take part in the battle of the 21st.

July 18. McDowell ordered the following movements for this day: 1st Division to push beyond Centreville, on the road to Gainsville; 2d and 5th Divisions to Centreville; 3d Division to Little Rocky Run; 4th Division to remain in reserve within the lines of Washington.

The 1st Division marched at 7:00 a.m., and its leading brigade reached Centreville about 9:00 a. m., and found it unoccupied. The division pushed on southwest, apparently taking the road to Blackburn's Ford by mistake. Here, and at Mitchell's Ford nearby, it came into contact with the brigades of Longstreet and Bonham at about noon. An artillery duel and a skirmish took place, with indecisive results. Desultory fighting lasted until about 4:00 p.m., when the 1st Division withdrew to the vicinity of Centreville. During the latter part of this affair, Longstreet was relieved by Early's Brigade at Blackburn's Ford. Beauregard received word that Johnston was coming by





forced marches via Ashby's Gap to his support.

McDowell had planned tentatively to turn the Confederate right. After the affair at Blackburn's Ford, he consulted with General Heintzelman and made a personal reconnaissance of the line of Bull Run. As a result of this he decided to operate against the Confederate left flank. On the evening of July 18 the opposing armies were disposed as shown on Sketch No. 2.

July 19. The Union forces spent the day reconnoitering the line of Bull Run for practicable crossings and routes thereto, with a view to turning the Confederate left. It was an expensive delay, for the forces of Johnston were already beginning to reinforce Beauregard, and Holmes was on the way up from Aquia Creek. No other material change occurred in the disposition of the opposing forces.

July 20. McDowell had planned a forward movement for this day, but apparently was dissuaded by his staff or subordinates. The terms of service of many of his regiments were about to expire, and most of them could not be persuaded to reenlist. Rumors had reached him that Johnston had joined Beauregard; they were only too true.

Johnston arrived at noon, assumed command of the combined Confederate armies, and his forces continued to come throughout the night. He had given Patterson the slip in the Valley, but expected to be followed at once. Johnston calculated that Patterson would join McDowell by the 22d at the latest. After consulting with Beauregard, the latter's dispositions were allowed to stand. Jefferson Davis had cautioned Johnston to make full use of Beauregard's familiarity with the situation and terrain, and he appeared anxious to

do this. Although Confederate estimates placed the Union forces at 55,000, Beauregard proposed to attack them next day. Johnston approved the plan, but its execution was prevented by the early attack of the Union forces.

McDowell, having drawn the 4th Division up to the vicinity of Vienna, with its leading regiment 7 miles east of Centreville, issued in substance the following orders for the attack next day:

1st Division, less 4th Brigade, moving at 2:30 a.m., via Warrenton Pike, to threaten passage of Stone Bridge, but not to open fire until daylight.

2d Division, moving at 2:00 a.m., via previously selected route (farm roads and paths), to cross Bull Run above lower ford at Sudley Springs, turn to left (south), and clear the west bank of hostile troops to include the Stone Bridge.

3d Division, moving at 2:30 a.m., to follow 2d Division, but to cross Bull Run at lower ford after cleared by 2d Division; then to turn left (south) and take position between stream and 2d Division.

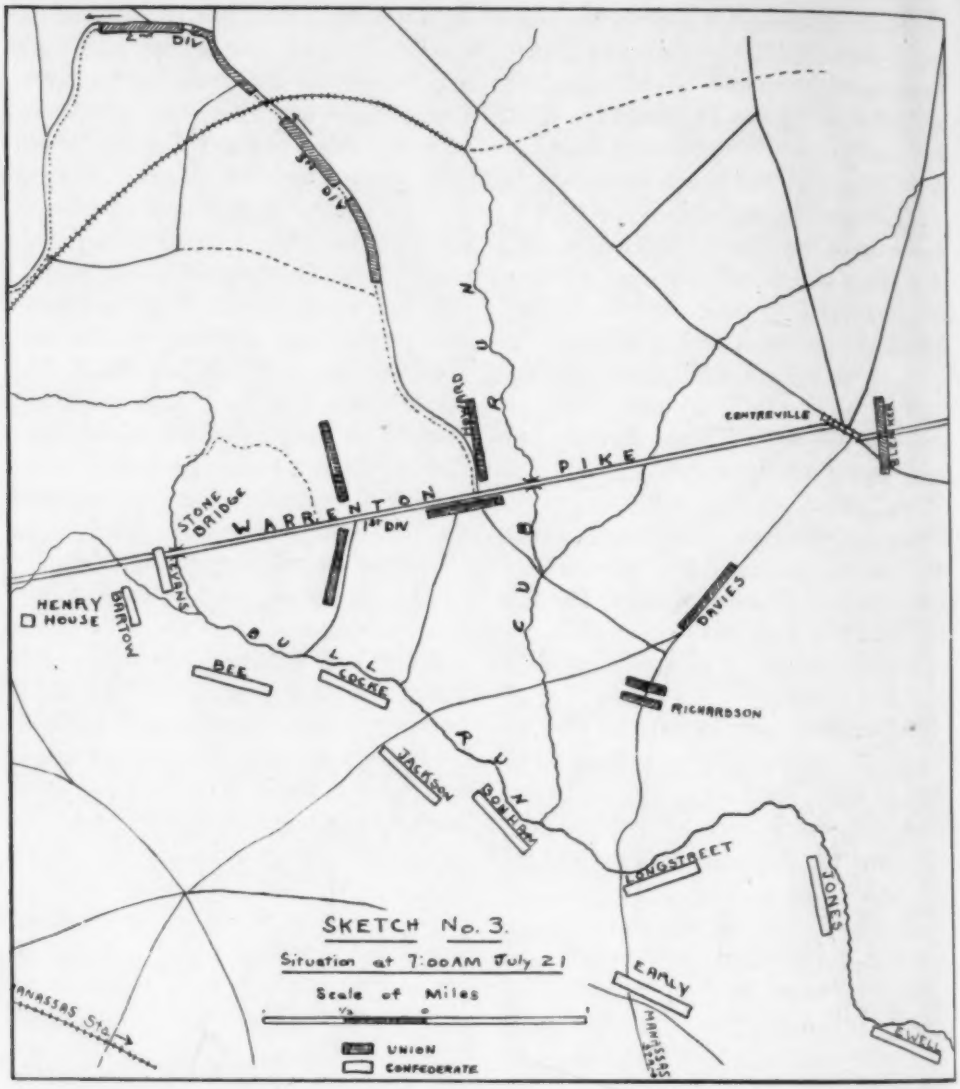
5th Division, with 4th Brigade, 1st Division, attached, to take position on Centreville Heights, threatening Blackburn's Ford. Division to constitute reserve, and organize Centreville for defense.

THE BATTLE

July 21. Early on the morning of the 21st the Union forces were on the move. The 1st Division (less 4th Brigade) (11 bns.) was delayed in starting, and the progress of the turning column was held up in proportion. The 2d Division (4½ bns.) did not turn north off the Warrenton Pike, just west of Cub Run, until 5:30 a.m. It moved on Sudley Springs, and was followed by the 3d Division (11½ bns.). Meanwhile the 1st Division had gotten into position "threatening passage of the Stone Bridge," and opened a brisk cannonade at 6:30 a.m. The Confederates did not reply, whereupon McDowell, fearing that they planned an attack against *his* left via Blackburn's Ford (which was exactly what Beauregard had in mind), held out an additional brigade (Howard's) (4½ bns.) as reserve at the road junction just west of Cub Run. The 5th Division (12 bns.), also somewhat delayed by congestion of roads through Centreville, moved to high ground overlooking Blackburn's Ford and opened fire at about 6:30 a.m. One brigade (Blenker) (4 bns.) of this division was left in reserve on the heights just east of Centreville.

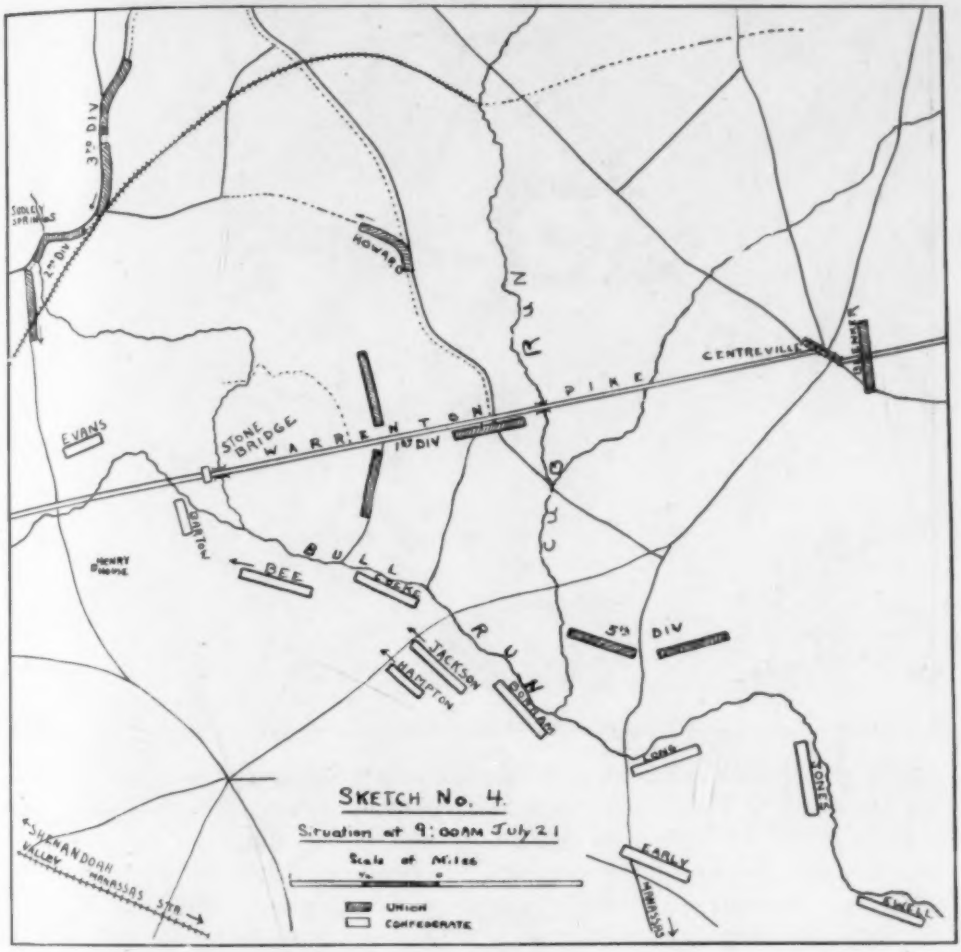
The Confederates were quiet but watchful. At 7:00 a.m. the brigade of Jackson (3 bns.) was posted between Cocke (4 bns.) and Bonham (5 bns.), and parts of Bee's (3½ bns.) and Bartow's (3 bns.) brigades were moved up to support the position at the Stone Bridge. At about this time Beauregard planned, and actually ordered, an attack by Ewell (3 bns.), Jones (3 bns.), Longstreet (3 bns.), and Bonham (5 bns.) against the Union left and rear in the direction of Centreville. The order failed to reach Ewell until after the threat against his own left had distracted Beauregard sufficiently to cause him to abandon his original idea. The other brigades actually crossed Bull Run, but were recalled soon after. At 7:00 a.m. the situation was as shown on Sketch No. 3.

About 8:30 a.m. Evans (2 bns.), posted on the Confederate left flank at the Stone Bridge, surmised from the inactivity of the 1st Division (11 bns.) in his front that the latter was executing



the "holding attack," and that the real threat was against the Confederate left (north) flank. Acting promptly on his estimate of the situation, he moved his entire force, less four companies left to guard the bridge, and formed facing north toward the expected Union attack. As events developed, he hit the nail on the head, for at about 9:00 a.m. large forces were reported crossing Bull Run about 2 miles above Stone Bridge and moving against the Confederate left flank. Evidently General Evans had estimated the situation correctly. At this time the Confederates had established their command post about ½ mile west of Mitchell's Ford; upon hearing of the turning movement, the brigades of Bee (3½ bns.) and Jackson (3 bns.), with Hampton's Legion (3 cos.), were ordered to the threatened flank. At 9:00 a.m. the situation was as shown on Sketch No. 4.

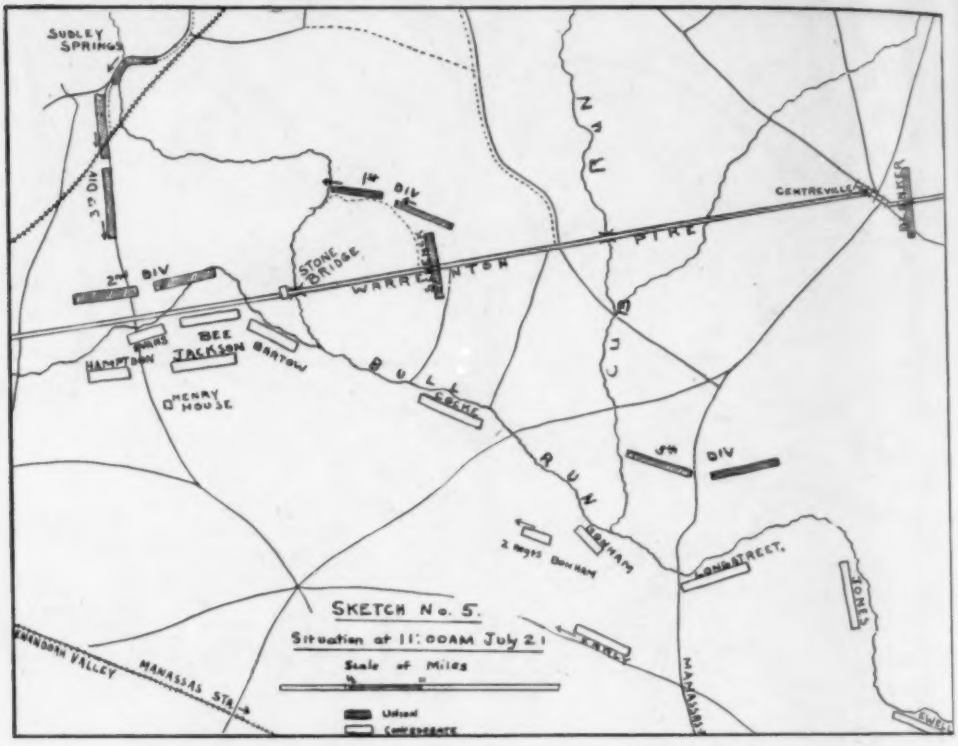
Meanwhile the 2d Division (4½



bns.) had reached the ford at Sudley Springs. Here it was delayed in crossing by men stopping to drink. General McDowell, who was on the scene, urged them forward, as dust clouds in the direction of Manassas indicated the approach of a large hostile force. Howard's brigade (4½ bns.) of the 3d Division (held in reserve at road junction west of Cub Run) was ordered up by a shorter route, and the 1st Division (11 bns.) was directed to press the attack on the Stone Bridge, as it was evident that the Confederates were weakening other parts of their front.

After crossing Bull Run, the 2d Division (4½ bns.) moved south, and at about 10:00 a.m. came in contact with the force of Evans (2 bns.), who had formed near the intersection of the Warrenton Pike and the Sudley Springs roads. The 2d Division, assisted by a regiment (1 bn.) of the 3d Division, promptly attacked, and though Evans was reinforced about this time by Bee's brigade (3½ bns.), the Confederates were forced back across the Warrenton Pike just as Jackson (3 bns.) and Hampton (3 cos.) arrived on the scene. At 11:00 a.m. the situation was as shown on Sketch No. 5.

The brigades of Holmes (1½ bns.)

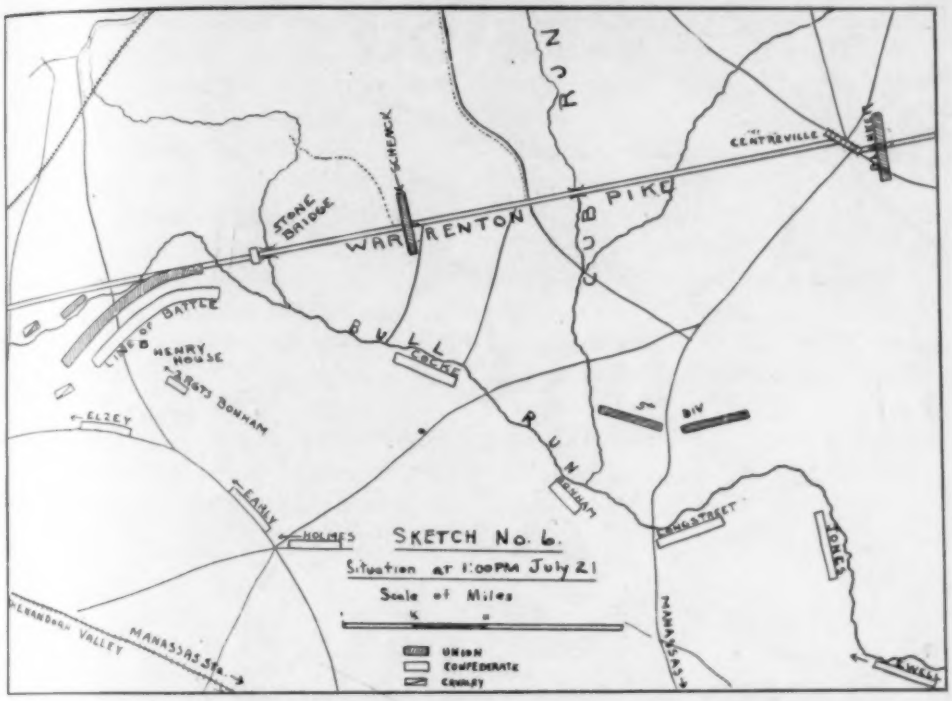


and Early (3 bns.), with two regiments (2 bns.) and a battery of Bonham's brigade, were now ordered to the Confederate left, and both Beauregard and Johnston hastened to the critical part of the field. Here the steadiness of Jackson and his brigade contributed greatly to restore confidence in the ranks of the wavering Confederates, earning for themselves the prefix of "Stone-wall" that clung throughout the war.

The 3d Division (11½ bns.) was now across the ford at Sudley Springs, and moving south to support the 2d. At about this time two brigades (8 bns.) (Sherman and Keyes) of the 1st Division crossed Bull Run just above the Stone Bridge and drove the Confederates up the slopes of the hill toward the Henry house. The Union troops now formed up for an attack on the Henry house hill, with the 3d Division, 2d Division (4½ bns.), Sherman (4 bns.) and Keyes (4 bns.) in the order named from west to east.

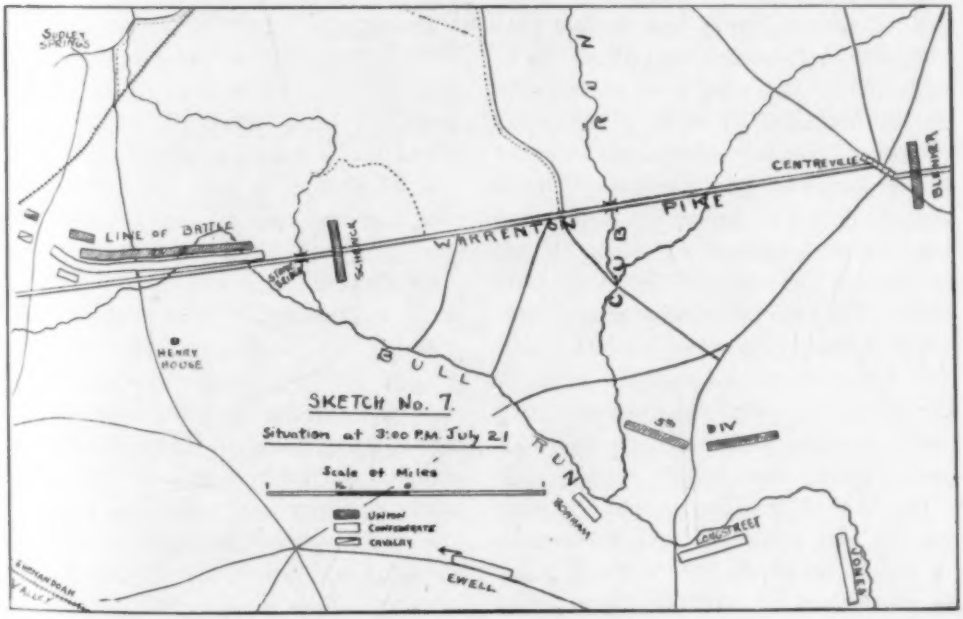
Beauregard had been left in charge on the threatened flank, and Johnston hastened to the center to push up reinforcements. At 1:00 p.m. the situation was as shown on Sketch No. 6.

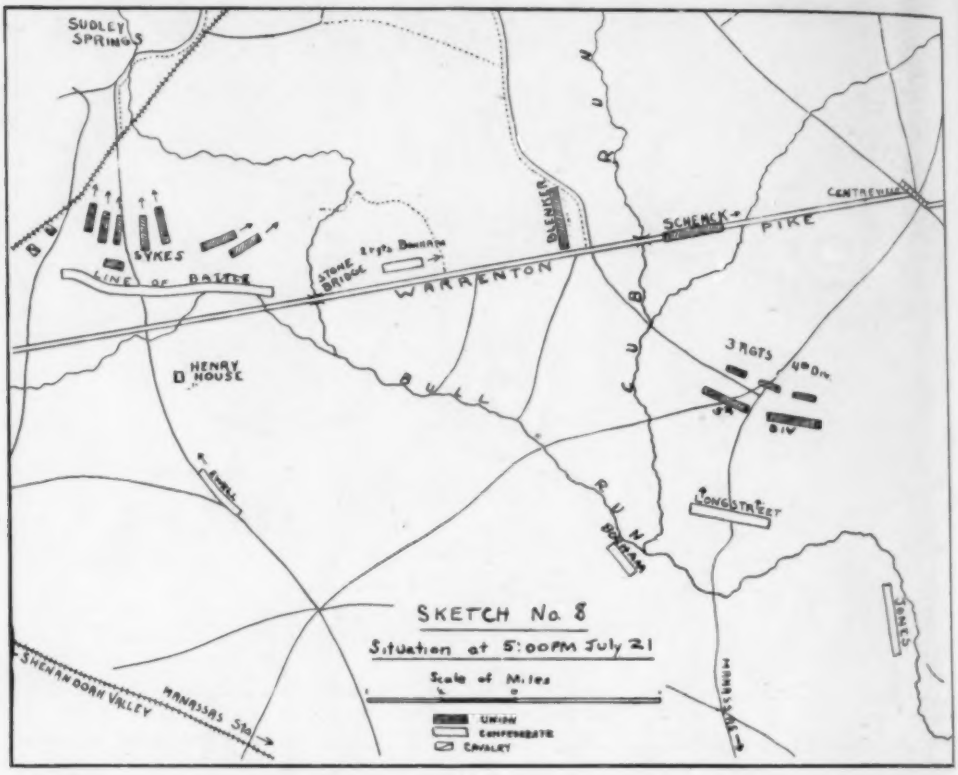
The battle swayed back and forth around the Henry house. The Union forces launched attack after attack, only to be beaten back. Finally, they took the hill, but a counter-attack immediately ejected them, Bonham's two regiments (2 bns.) arriving just in time to participate. McDowell attempted to extend to the west, but was struck by three regiments (2 bns.) of Elzey's brigade, practically at the same time that Beauregard launched a general counter-offensive, and the Union forces were driven north of the pike again. Schenck's Brigade (3 bns.) was held up



by obstructions at the Stone Bridge until too late to be of assistance on the west bank. At 3:00 p.m. the situation was as shown on Sketch No. 7.

The Union forces rallied and renewed the attack about 3:30 p.m. Early (3 bns.) arrived on the field just in time to strike the right flank and rear of





McDowell, and the attack broke down. The Union forces, worn out by marching and fighting continuously since about 2:00 a.m., now began to give way. Disorder soon ensued, and all efforts to rally the tired troops were of no avail. Sykes' battalion (2 cos.) of Regulars (Porter's brigade) was posted to cover the withdrawal, and Blenker's brigade ordered up from Centreville to the road junction just east of the Stone Bridge to prevent pursuit via the Warrenton Pike. The retreat soon became a rout, which quickly degenerated into a panic. The Union troops fled via the fords to the turnpike; upon reaching the road units became intermingled, and all semblance of organization disappeared.

Bonham (2 bns.) was ordered to pursue by the turnpike, and Longstreet (3 bns.) via Blackburn's Ford; both were checked by McDowell's reserves (12 bns.) in the vicinity of Centreville. At 5:00 p.m. the situation was as shown on Sketch No. 8.

During the foregoing action the 5th Division (12 bns.)—less Blenker's brigade (4 bns.)—had been facing Longstreet (3 bns.) at Blackburn's Ford. When the retreat across Bull Run began, McDowell ordered the division to hold the high ground commanding the ford and reinforced them with three regiments (2 bns.) just arriving from the 4th Division. These troops, with those on the Warrenton Pike, checked pursuit by the Confederates and covered the retreat of the Union forces through Centreville. Much confusion occurred at the bridge over Cub Run, where artillery carriages and wagons, from which teams had been cut by fleeing soldiers, blocked the only available crossing. This blocking of the bridge

accounted for the heavy loss of guns in the Union artillery. Lack of cavalry and exhaustion of the men prevented full exploitation on the part of the Confederates of the victory.

By dark most of the Union forces were east of Centreville, and McDowell decided not to make a stand there, as the panic continued unabated. Most of the troops, in fact, decided matters for him, and continued to move in the general direction of Washington. Blenker (4 bns.) on the Warrenton Pike, and Richardson (4 bns.) and Davies (4 bns.) on the road to Blackburn's Ford, continued to cover the retreat as far as Centreville; from there Richardson's brigade became the rear guard, clearing Centreville at 2:00 a.m. on July 22.

July 22. Bonham (5 bns.) occupied Centreville on the 22d, after the Union troops had withdrawn. A downpour of rain practically prevented offensive operations, though it did not seem to interfere materially with the retreat of McDowell's army. Trains were run out to Fairfax Station and utilized, and the rearguard reached Arlington at 4:00 p.m. The campaign of the First Bull Run was over—all but the investigations.

CASUALTIES

Union				*Confederate*			
Unit	*K&W*[1]	*M*[2]	*Total*	*Unit*	*K&W*[1]	*M*[2]	*Total*
Keyes	69	154	223	Bonham	76	..	76
Schenck	46	52	98	Ewell	..	..	..
Sherman	312	293	605	Jones	75	..	75
Richardson	57	26	83	Longstreet	14	..	14
Porter	263	201	464	Cocke	148	4	152
Burnside	229	134	363	Early	143	6	149
Franklin	267	92	359	Hampton	119	2	121
Willcox	242	190	432	Jackson	415	..	415
Howard	127	98	225	Bartow	355	..	355
Blenker	22	96	118	Bee	332	1	333
Davies	2	1	3	Elzey	26	..	26
All others	5	1	6	All others	268	..	268
Aggregate	1641	1338	2979		1971	13	1984
		Guns lost..	25			Guns lost..	....

Note: Of all the above forces, the respective adjutants general give the following estimate (Battles and Leaders) of total *engaged:*

Union: 18,600; 24 guns *Confederate:* 18,000; 32 guns

[1] Killed and wounded. [2] Missing.

Long Live the Doughboy!

From the Notebook of "General Experience"

THE use of the word "gob" as a term for enlisted men of the Navy is proscribed. Let us hope this will not be a precedent for robbing the "doughboy" of the proud title that he has borne with distinction on many a bloody field.

Sub-Caliber Training with the 37-Millimeter Gun

CAPTAIN JAMES J. COGHLAN, Infantry[1]

THE purpose of this article is to bring before R. O. T. C. units whose facilities do not allow extensive outdoor firing of the 37-mm. gun the possibility of adapting this gun for use on the indoor range. As many of these units are in the northern part of the United States, this use of the sub-caliber will make for more efficient training because of the increased interest of the students. The course of instruction as outlined is not intended to reduce the firing with explosive ammunition, for after all the student must receive his more important training on the outdoor ranges. The present allowance of 37-mm. ammunition for R. O. T. C. students is inadequate to train them properly. The greatest need in the majority of units today is the development of practical methods and equipment for training students in indoor work from October to the latter part of February.

Most of the class periods in our universities and colleges are of one hour's duration. After the student has learned the mechanics, mounting and dismounting, stripping and assembling, functioning of the gun, and the care and cleaning, he is ready to take up direct laying. All senior R. O. T. C. units have 50-foot indoor ranges, and a large number could secure more space on their ranges—say 1,000 inches, or 83.33 feet. However, the 50-foot range will do.

The sub-caliber designed is easily prepared. A description of how the writer proceeded will explain its preparation. A 22-caliber, single shot Winchester musket was used. The upper part of the wood stock was removed, the front sight blade was taken off, and the front block placed over the front sight fixed base so there would be slight friction when the front block entered the bore of the 37-mm. gun. A block was placed farther back on the barrel (3¾ inches from the receiver) to allow clearance in working the cocking and extracting mechanisms. This block was made so as to fit smoothly into the breech and chamber, and when it was inserted and given a half-turn to the right it became stationary within the breech housing. Both blocks were made of brass so that no damage would be done to the barrel or to the breech. The sub-caliber barrel is secure and will not move when placed in the 37-mm. gun; it is practically locked in position.

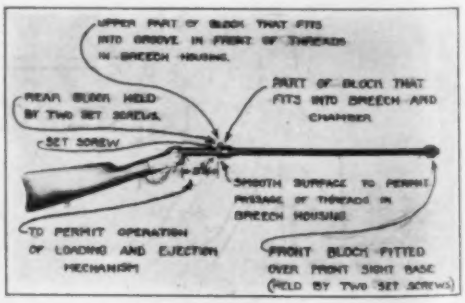

UPPER PART OF BLOCK THAT FITS INTO GROOVE IN FRONT OF THREADS IN BREECH HOUSING.
REAR BLOCK HELD BY TWO SET SCREWS.
PART OF BLOCK THAT FITS INTO BREECH AND CHAMBER
SET SCREW
SMOOTH SURFACE TO PERMIT PASSAGE OF THREADS IN BREECH HOUSING.
TO PERMIT OPERATION OF LOADING AND EJECTION MECHANISM
FRONT BLOCK FITTED OVER FRONT SIGHT BASE (HELD BY TWO SET SCREWS)

PLATE I
The sub-caliber

[1] Assistant Professor of Military Science and Tactics, University of Missouri.

The butt-stock was left on so that the rifle may be used for other purposes. The blocks were fastened to the barrel by set screws and can be easily removed. No part of the rifle has been injured. The mechanism may seem crude in appearance, but the shot group is less than ½ inch at 1,000 inches, using the 22-caliber, short, government issue ammunition.

PLATE II
Number 2 position. Inserting sub-caliber tube in 37-mm. gun (breech block removed)

OPERATION OF THE MECHANISM

Place the 37-mm. gun at the firing point; remove the breech lever, extractor pin, and the breech lock; remove the extractor. Take the sub-caliber, turn the back of the barrel down, and insert the front block into the breech. Holding the barrel of the sub-caliber horizontal, carefully push it all the way forward into the bore of the 37-mm. gun and give the sub-caliber a half-turn to the right. The raised portion on the rear block fits in and locks the block in the groove in front of the threads of the breech housing. The hammer is up, and the trigger guard and cocking mechanism are down in their proper places. The sub-caliber is fixed in position and will not move. The

PLATE III
Number 3 position. Sub-caliber tube all the way forward

telescopic sight can now be adjusted for firing.

The assistant gunner loads the sub-caliber with one round of 22-caliber, short ammunition. The gunner now makes his final lay on the target and gives the command to fire. The assistant gunner fires the piece, taking care not to derange the lay of the gun; he must take great care not to move the 37-mm. gun when he is squeezing the trigger of the sub-caliber. The pro-

PLATE IV
Number 4 position. Sub-caliber tube being turned to right so that upper part of rear block locks in forward groove in breech housing

PLATE V
Number 5 position. Sub-caliber in final position before loading and firing

cedure of firing is the same as that with live ammunition, only substituting 22-caliber ammunition.

The observer takes position to the right or left of the line GT at some point between gun and target. From this position he can give the gunner the necessary corrections for deflection and elevation. If the observer is located at the gun position or in rear of it, he will need field glasses or a telescope to spot the shot holes. One mil will change the strike of the bullet 1 inch at 1,000 inches. A change in elevation of 25 yards will move the strike of the bullet approximately 1 inch. In the above calculations the type of ammunition and the year of manufacture will govern. The tests made in 1928 are with the Peters Cartridge Company 22-caliber, short ammunition issued by the government.

The bullet stop, a steel plate 3/16 of an inch thick, should be placed at an angle of from 40 to 60 degrees. For this plate any thick iron or steel, such as discarded boiler plate, is satisfactory. Sand 3 inches deep should be placed at the bottom of the plate to prevent wear of the floor by fragments of the bullets.

PLATE VI
Number 6 position. Sub-caliber loaded. Gun laid on landscape target, 1000″ range, direct fire

PLATE VII
Number 7 position. Pointing sub-caliber, loaded and ready to fire

LIGHTING SYSTEM FOR INDOOR RANGES

The lights on the target should be varied. The beginner should have a bright light. For this purpose a good flood light system or the type of lights used on indoor ranges is satisfactory. When the firer becomes proficient, the lights should show him a dim target, with changing lights regulated by turning off lights or by using different colored bulbs. There should be no light

other than that on the target when the gunner makes his final lay. A drop light should be in rear of the gun and convenient to the gunner when he makes his adjustments and readings on the sights; this light is turned off after corrections are made. The ordinary pocket flashlight can be used for reading adjustments on the sight.

TARGETS

To teach the firer to lay on a rectangular target, use the 1-inch black paster. Fire five rounds on each paster, four pasters being placed 4 inches apart on a large piece of white paper. When the gunner has obtained his correct adjustment for the first paster and fired the five shots, he can then lay on the other pasters. This method will test the student for his accuracy in correct laying.

For other direct fire exercises the musketry landscape recording target can be used. Other types of targets drawn to scale for various ranges (the extreme range on the 1,000-inch range representing 1,000 yards for the outdoor range) represent houses, trees, stumps, tanks, and terrain. A sand table arrangement can be worked out, with cardboard figures made to scale for the various ranges as targets. A cardboard or cheap wood figure to represent a tank may be placed on top of a toy electric engine that is defiladed from the gun by a small steel plate 1 foot high placed in front of the moving target. The track for the electric engine should have numerous curves and should be placed so that the target will move up and down, disappear from sight, and reappear at some other place. It should be arranged so that the gunner fires at the tank moving directly across his front, again at the tank coming straight toward him, and later appearing from an oblique direction. If the toy engine and track are not available, the tank may be towed by a string.

It is suggested that this firing at moving targets be done at 35 feet to represent the distance required to do damage to a tank.

The speed of an electrically moved target is regulated by a small rheostat. This moving target is merely suggested, as it increases the interest of the student who wants to see what he can do on a moving target. We are too prone to theorize about what can be done, without actually trying it. Too much is taken for granted. The chances are slight that the student will ever shoot the 37-mm. gun against a moving target, but by doing it on the indoor range he will get the idea. The technique of direct laying, using the target as an aiming point, using an aiming point other than a target, fire control and adjustment, problems involving fire adjustment, adjustment for deflection, application of direct laying and the night firing box, as laid down in the various R. O. T. C. manuals of instruction, can all be put into practical use on the indoor range with the sub-caliber barrel in the 37-mm. gun.

INDIRECT FIRE

Indirect fire practice calls for some additional preparation. A screen made of target cloth or any similar material will not cause much change in the flight of the bullet. This screen should be placed between the gun position and the target so that the gunner cannot see the target. Direction can be established by the prescribed methods, such as use of the aiming stake, compass, compass and mil formula, and the ground map method. Targets can be

placed at different heights, or the gun can be raised or lowered in order to get a minus or a plus angle of sight. The minimum range and mask clearance cannot be used, due to the short range and type of bullet. On outdoor ranges, mask clearance can be had by using the 22-caliber, long cartridge.

MISCELLANEOUS DATA

There should be three sub-caliber barrels, one for each 37-mm. gun, issued to senior R. O. T. C. units, and one spare. If given good care, the barrel will last several years. The only mechanism that will wear and get out of order after several thousand shots is the extractor, which can be easily replaced at a cost of fifteen cents.

Since parts for the rifles are no longer articles of issue, any replacements should be procured from the manufacturer.

After firing, the sub-caliber barrel should be cleaned as the bore of any rifle is cleaned, and especially around the outside of the muzzle and the front block. The forward part of the 37-mm. bore must be given careful cleaning, as the gas from the sub-caliber escapes into the forward end of the bore.

Photographic plates show the dispersion of the 22-caliber, short bullet at 1,000 inches. Twenty rounds were fired on the 1-inch black paster. One of the sub-caliber rifles used in the instruction was chambered for the 22-caliber, long rifle ammunition. The results with the long rifle cartridge will be approximately the same as those with the issue rifle at 50 yards. It is practicable to give this instruction with the long rifle cartridge on outdoor ranges up to 200 yards.

R. O. T. C. units that desire to have rifles chambered for the long cartridge can have the chamber rebored by a commercial company or by the Ordnance Department; the cost will be nominal.

DEFLECTION

The deflection correction for the first shot in firing on the outdoor range at 1,000 inches is approximately 5 mils to the left. Before starting firing, set 5 mils left on the deflection disc in order to get the gun to normal zero at 1,000 inches. This is approximate and will vary slightly with the different guns. The reason for this correction is that the bore of the sub-caliber will be to the right of the target if the deflection disc is set at zero. This correction must be made or the first shot will go to the right of the target.

COST OF MECHANISM

The cost of placing the block on three rifles is twelve dollars. A reliable machinist can make the blocks and put them on the barrel of the sub-caliber if given the proper measurements. The block should be fastened to the rifle barrel with set screws, as welding them on might damage the barrel. Then, too, if screwed on, the blocks can be used again on a new barrel. The cost of the bullet stop can be anything that one desires to make it. The one in use at the University of Missouri is 10 feet high and 18 feet wide. In rear of it there is a brick wall 2 feet thick, 20 feet high, and 40 feet wide. A twenty-five dollar expenditure for 3/16 inch steel will give space to work two guns. Seventy-five dollars will give all the space for a bullet stop that will ever be needed for nornal use. The large bullet stop on the University of Missouri range is used for musketry problems firing squad problems on the landscape target with the issue, 22-caliber, model 1922 rifle.

It is used by the pistol team for indoor firing of the Colt automatic pistol, 22 caliber. Therefore it was necessary to have a large space. The instructor can operate on a much smaller space if necessary. The distance from the bullet stop to the farthest point on the Missouri indoor range is 100 feet, and firing can be done that far back.

PRACTICAL TRAINING FOR R. O. T. C. STUDENTS

The writer wishes to emphasize that practical activities developed for use in R. O. T. C. units make the instruction of much greater interest to the student. It must be remembered that the instructor is faced with one-hour periods, possibly no outdoor range, winter weather, and is required to give the student a maximum of instruction in a minimum of time. Therefore he cannot use the procedure of those who have outdoor ranges and trained assistants at their disposal.

It is believed that sub-caliber training is a much more practical method of training students unable to fire the regular service ammunition than any other method in use. When the student goes to the summer camp, he fires a few rounds of low explosive shells, gets a practical lecture of a few hours, and that ends his outdoor training in firing with the 37-mm. gun. The allowance of ammunition and the time spent on the training are inadequate to give him a proper grasp of what it is all about. When he sees that he does not get the good results that he expects, he loses confidence.

The sub-caliber course does not require more time than is now allotted to the 37-mm. gun in the R. O. T. C. academic schedule. If the student pursues this course, he will get the proper working knowledge of the gun. He is interested in the results, and he sees, not imagines, what might happen. Finally, to sum up, the student who is trained with the sub-caliber rifle does better with the few shells that he fires at summer camp than the one who has not used the sub-caliber.

After eight years of experiments and practical experience with all types of sub-calibers the writer believes that the present type above described is the best, and that its use will make the average student more efficient in the short time that is allotted him for 37-mm. training.

The writer desires to thank Col. M. C. Kerth, Infantry (D. O. L.), Professor of Military Science and Tactics at the University of Missouri, for criticisms, suggestions, and for his support in furthering the project, thereby making it possible to supplement the student's training in 37-mm. work.

He wishes also to express his appreciation to the members of the senior class of the University of Missouri, who have given their time and help in the above study, and particularly to Cadets Col. Hartley Pollock, Major Elbert Hasenritter, and Capt. James Tarr.

To Dr. Stratton D. Brooks, President of the University of Missouri, the writer is also indebted for his personal interest in making the type of indoor range possible, and for the financial assistance rendered in the development of this phase of work for the Reserve Officers' training Corps at the University of Missouri.

The Place of Psychology in the Army

CAPTAIN JOHN H. BURNS, Infantry

"Men and passions are the subjects to write about—there is something there for study."—NAPOLEON

FOREWORD

Extensive research and new discoveries during the last few years have changed the entire conception of psychology. The old psychology, which dealt almost wholly with the rational faculties, has had to be completely revised. The new psychology, as it is often called, seeks to find the hidden springs actuating human conduct, and in this it has had no little success. Since the old psychology could not explain human conduct it naturally had little to offer Army officers who are mainly concerned with directing and controlling men.

This is the first of a series of three articles on the new psychology. The object of the series is to furnish a general background into which can be fitted a great deal of Army psychological knowledge, and to indicate the scientific basis of much of our army procedure. Throughout, the effort will be to give the essential facts of the subject without the use of a lot of technical words. The first article opens the general discussion and endeavors to widen the prevailing conception of psychology; the second[1] analyzes the structure of the mind, considers complexes, mental conflict, the function of the instincts and the process of thinking; and the third[2] discusses the application of psychology to the Army, with a particular emphasis on the herd instinct and the part it plays in building up a military organization. Many of the questions raised in the first article will be answered in the last one.

IN THE Army psychology is an important study. It is seldom given the attention it deserves. When it is given serious attention, it is generally in the form of lectures on the psychology of leadership. This gives rise to two errors. On the one hand it gives the impression that psychology is of value only in connection with the problem of leadership; on the other it gives a confused picture of the subject. For an effort is made to teach the practical application of the subject without first thoroughly going into the principles. Leadership, it is true, consists in exploiting certain fundamental principles of human psychology; but the effort to teach the practical application of these principles without first mastering them is bound to lead to vagueness and confusion. As a consequence of this method of dealing with the subject, there is a tendency to regard psychology as a restricted subject, confined only to the field of leadership, and to think of it as too vague and theoretical to have any practical value. Nothing is further from the truth. It is the purpose of this article to try to expand the conception of psychology, show its great scope beyond the field of leadership, and indicate where psycho-

[1] The second article is so long that it was necessary to divide it into two parts, which are scheduled to appear in the October and November numbers of the JOURNAL.

[2] Scheduled to appear in the December number.

logical study can be advantageously applied to obtain clearer light on some military problems.

The Army problem is essentially one of control. This control is of two kinds: namely, physical control of the units that make up the Army, and mental control of the individuals that compose the units. We stress the difficulties of physical control of units during combat. Elaborate organizations, called staffs, are devised for directing and controlling these units. From long dealing with the problems of physical control of units, and intense application to controlling, supplying and maneuvering masses, we lose sight of, or at least fail to stress, the fact that these physical factors are not the basic ones. The basic factor is control of the individual, and thus is psychological in nature. After all is said and done, a battalion is not an entity. The reason that a battalion can be handled as a unit is wholly because control has been obtained of the units that make up the battalion—that is, of the individual men. We take this control as a matter of course; our whole military system is predicated on the assumption that this control has been gained, or can be gained, given the requisite training time. Despite the fact that this psychological quality is essentially the basis for all military organization, that no clear idea is prevalent as to how it is gained or lost, that its proper understanding is the essence of leadership, still there is no great effort to analyze it, define its source, or ascertain the laws that govern its growth.

One reason for this neglect is that our military methods of developing armies are fundamentally sound. For instance, given a group of men for a certain length of time, the Army methods can turn it into a military organization, so well integrated and controlled that it can be handled as a unit. Something happens to these men during that period, changing them from a random collection of civilians into a compact, hard fighting, military organization. But what that mental change is, and how it develops under the military process, is somewhat of a mystery. We are satisfied in knowing that it does occur and that the method used to obtain it is sound.

If pressed for a word to define the result of this military process, the answer is that the men have acquired discipline. But the word discipline itself needs defining, for it has fallen from its high estate and now means anything from a process of training to a scheme of punishment. Furthermore, it is doubtful if discipline—using the word in its highest military sense—defines completely what has happened to the men. Discipline is undoubtedly a resultant of military training. However, it does not seem to be a primary quality. There is more than a suspicion that discipline is only a symptom of some deeper seated quality, whose other manifestations are morale and *esprit de corps*.

Here, then, is a place to do a little psychological investigating. Because we know how to develop this inner quality, by using methods handed down to us from armies of the past, is no reason for neglecting its source. Perhaps we can find quicker and more efficient ways of developing it. But since the problem lies in the domain of psychology, and since the Army officer is an eminently practical person who prefers to deal with concrete realities rather than abstractions, the mere word "psychological" prefixed to a topic is enough to damn it. For there seems to be nothing more impractical than psychol-

ogy. Yet the humorous part of it all is that the Army officer is a highly practical psychologist, who spends his whole life in applying the principles of psychology by a sort of rule-of-thumb method. The Army itself is a monument to the wise use of psychology.

The unfortunate part of the matter is that we use, or abuse, sound psychological methods in the Army without any clear idea of the principles underlying them. As a consequence, when civilian or legislative criticism is leveled at Army methods, we have no defense except to maintain doggedly that we are right. Take the matter of the salute. Its existence in armies from time immemorial is evidence enough that there are sound psychological reasons for its survival. Study would disclose what these reasons are, and prove that the salute is not a frill but a fundamental. Furthermore, such study would enable us to defend our principles scientifically instead of dogmatically.

The first thing necessary in defining psychological fundamentals is to ascertain, as nearly as may be practicable, the result or quality for which we are striving. To do this we must be careful to distinguish the primary cause, and not a symptom of it. Once this quality is defined, then we may go to psychology and ascertain on what human instinct or other mental quality it is based, and learn how to stimulate its growth or development. We first must ascertain the fact, and then interpret it by using psychology.

To indicate how this first analytic step might be made, let us consider the change that comes over men during a military training process, and strive to state that change in plain, non-technical language. Military training consists in teaching men a variety of things that a soldier should know. In this the Army is a school, and its methods are not far different from those of any other school. We concentrate on making men fit, teaching them how to use their weapons and the intricacies of drill. Manifestly, it is not these facts that turn the civilian into a soldier, else soldiers would be the product of any school. The formal instruction gives the soldier a mass of facts, but it makes no change in his mental attitude. The change that turns the civilian into a soldier is a by-product of the course. It is not a subject of formal instruction. The change is brought about by teaching, in indirect and often subtle ways, the code of the soldier. Day after day, by suggestion mostly, the elementary facts of soldiery are hammered home.

But teaching these facts is only a minor point. The most important part, the very center and core of the work, is to inculcate a desire on the part of the men to live up to these ideals of conduct. Virtually, around the "Thou shall nots" of the military existence must be built up a mental feeling not dissimilar to the feeling which surrounds the Ten Commandments. The military code must be enshrouded in a conscience similar to that which envelops the moral code, and which is responsible for more good conduct than the law of the land.

In violating the code the soldier must feel a sense of mental unrest, an uneasiness not based on fear of punishment. A system of rewards and punishments may be the scaffolding by which this attitude is built up, and to some extent maintained; but unless the final result is an individual who does right because of an inward urge to do the correct thing, instead of fear of punishment, then the process has been a failure. Hedonism, or the doctrine that human

conduct is the result of seeking pleasure or avoiding pain, is quite discredited. It is this inward urge on the part of the soldier to do the correct thing, this and the feeling of sanctity which develops around the tenets of the military code, that is the resultant of a process of military training. A man thoroughly indoctrinated has discipline, morale and esprit. Just as we learn the best way to teach a subject by employing the principles of psychology, so should we learn from psychology the best methods of developing this basic soldierly quality.

To some, this analysis of the mental resultant of military training may seem fanciful. It is, nevertheless, eminently correct. That much maligned but sound psychological play, "What Price Glory," brings out this point particularly well. Captain Flagg, the ex-noncommissioned officer, returns from the trenches half dead with fatigue, and plans to take advantage of his leave. Suddenly the order arrives to go back into the line. He curses the comfortable staff officers, who heartlessly send back his exhausted outfit. He threatens to go "A. W. O. L.," and damns the Army from top to bottom! But he ends up his harangue with a note of resignation. He will go back; not because he fears punishment—he is beyond that stage—but because some inward compulsion makes him obey the order. He wonders about his reaction and likens it to a religious feeling, and the Army to a religious organization. He is not far wrong. The dramatist, an ex-officer, has probed in this scene to the very heart of the military system. Sometimes, while the scientist fumbles forward, the poet or the dramatist goes straight to the objective.

A little thought on the subject will show that this is the only way that soldiers can be controlled. For there are but two ways of controlling human conduct: one is to implant in the minds of men a feeling of compulsion to do the correct thing, though they may hate it; the other is to compel them by force to do it. This was neatly expressed by Henry Suzzallo, at the time professor in Columbia University. "Men are controlled in two ways," said he; "either lay a club on the outside of their heads or on the inside."

The best example of controlling human action "by laying a club on the outside" is demonstrated in a penitentiary or a guardhouse. The best example of the other type of control is furnished by the armies. Here we find men freely going out to risk their lives and to die. It is not an outward force that pushes the thin skirmish line forward through the storm of shell and the sleet of machine gun fire; neither is it fear of the wrath of the commander, nor the thin screen of military police some miles in the rear, nor the ever ready court-martial and the resulting firing squad—none of these furnishes the driving power. It comes from that inward urge to do a soldier's part; that feeling of sanctity which has been developed around the tenets of the military code. We marvel at the religious feeling which supported the martyrs of old as they stood before the beasts in the Roman arena; yet we treat with marked neglect a feeling just as powerful, which supports the soldier in battle. We cannot call this feeling patriotism, for while patriotism is a great help in developing it, still it can, and does, exist independently of patriotism. The French Foreign Legion demonstrates this quite clearly.

But the mental change that results from a process of military training is not the only thing that will fear investiga-

tion. If we delve below the surface of military life, we find many things that need psychological study and interpretation. There is the subject of close order drill, for example. It is well known that a course of close order drill is valuable in producing smartness, discipline, and morale. In the late war, units in rest areas were given strenuous work in close order drill in order to rejuvenate them after a sojourn in the trenches. But why does close order drill produce this effect, while extended order has the opposite one? Why are units that spend considerable time at close order drill better disciplined than those units that do not? What alchemy is there to close order drill that secures this effect? This moving of men in small units around a parade ground is a purely physical process, but it produces a psychological effect. We know what this result is, but we know no reasons why this result should be obtained. What mental quality does drill develop, and how does it do it? Perhaps, if we knew this answer, we could drill more intelligently and utilize other portions of our training to supplement the effect. Intelligent psychological study would disclose these reasons.

There are many items of military life which need such interpretation. For instance, we have the salute, ceremonies, the colors and insignia, to mention but a few.

A psychological interpretation of the military process and the items of military life does not cover the entire field. Military history has been thoroughly studied; all the physical factors that bear on combat have been meticulously covered. But the psychological factors have been studiously neglected. If we were as familiar with the principles that control the conduct of mankind as we are with the principles of tactics, military history would be more illuminating and of more practical value. The formations of Alexander or Caesar have long since become obsolete, but the men who made up the phalanx and the legion are of the same stuff as the men who make up the section and the platoon. After all, man himself is the most deadly weapon on the battlefield, and he acts today as he did under Thutmose, the Egyptian. Each age dresses its people with different garments and their minds with different prejudices, but beneath the clothes and beneath the prejudices they are all alike, and have been since Adam.

This being so, the emphasis, then, should not be placed on the formation, or on the physical work that the formation was required to do, but rather on how the formation fitted the men, and how this fitness enabled it to do what the commander desired. Because it is easy to demonstrate the principles of war by reference to these earlier and simpler methods, it must not be thought that this is all there is to learn. After all, the main thing to study is how the man acted, because that will throw light on how the modern soldier acts. Philip's phalanx is obsolete; Caesar's legion is no more; Belisarious' mailed, horse archers have had their day; the Swiss "hedgehog" swept into power and passed, as they all passed; today their interest is merely academic, but the principles of the human mind which these formations exploited are the same as the principles which we seek to exploit today. Their study is practical.

In the study of the development of tactics, one often hears the remark "that weapons change and so change tactics." But this is only partly true. During the early history of mankind the basic arms

were the sword, the spear and the shield, but the variety of tactics was as great as the number of races. The truth is that tactics differ with the difference in racial psychology. Or, to express it more accurately, difference in tactics may be accounted for by the way in which each race tries to exploit the fundamental principles of the human mind. For it must not be forgotten that basically all humans have the same psychological reactions. Where there seems to be a marked basic difference between races or nations, it is due to the social institutions that develop or repress elemental forces, but never can eliminate them.

Confronted with the problem of battle, different nations will have different methods of solving it. These methods will partake of the national character. The formations and tactics must be based on this character, although they may not be the best that could be devised. It is not by accident that the logical Greek mind developed the phalanx. Looking on battle as the application of mechanical principles—which it is not, though there is even today a tendency to regard it so—the Greek evolved the deep mass of the phalanx to break the thin line. It was a neat solution of a problem in physics. Its fatally weak point was in regarding the phalanx as a solid mass instead of a conglomeration of humans. Hence, the phalanx did not function as a mass after the instant of impact, and one student of the military art has stated that it lost its momentum and its mass quality before the impact, and this from purely psychological reasons.

The Romans were practical men, with a genius for human relations, and little concerned with theories. They evolved a formation which was psychologically sound and which fitted the men and weapons to perfection. Since Romans were a high type of soldier material, the result was the greatest military organization of antiquity—the Roman legion.

The phalanx, with its depth of sixteen files and its five rows of spears bristling beyond the front rank of close locked shields, would logically seem to have been a tremendous engine of assault. So it would have been if the individuals who composed it had been automatons; but they were men, and no military system that ever existed, or ever will exist, can change men into Robots. The loose, triple-line Roman legion was based on tactical principles, it is true, but its strength came from the fact that it was adjusted to the mental possibilities and limitations of men, as well as to the physical necessities of battle. So, when the test came, the legion destroyed the phalanx, for in war the logical opposed to the psychological will always lose.

The point to all this is that one can gain little of practical value from the discussion of old formations or tactics on purely mechanical grounds, such as arrangements of men or groups, or differences in weapons and their use. The practical lesson to be learned from the battles of the past is not how formations or tactics exemplified the principles of war nor how these tactics changed with the changes in weapons, but how certain great mental principles were exploited and how, as the strength of these principles waxed and waned, the formations and tactics changed. We must not become obsessed with the idea that war is a gigantic game of chess, and thus strive to explain everything in accordance with physical principles.

A psychological attitude in the study of military history may help to solve some of the riddles. For instance, why

did the Roman legionary system, so admirably adapted to psychological principles, change during the passage of time, until eventually it was not unlike the phalanx which it displaced? There is a question! Another is: Why did infantry, after being the supreme military arm from the dawn of civilization, suddenly fall from its place?

When the Gothic horsemen thundered down on the Roman flank at the battle of Adrianople, they destroyed not only an imperial Roman army but the supremacy of the infantry. The very name legion disappeared, and for a thousand years cavalry ruled the battlefields of the world. So great was its ascendency that even today a certain prestige clings to the cavalry arm. Why did the legion, which has always looked with scorn on cavalry, suddenly collapse before a horde of barbarian horsemen, never to recover?

The tools of war were not so much different in 378 A. D. from what they had always been. Certainly we can find no new weapon to cause this revolutionary change. The stirrup, which was invented at about this time, might have helped, if it were used, by giving the horseman a firmer seat, and thus enabling him to wield his weapons with more ease and effectiveness. Or there may have been developed a larger horse, capable of carrying a heavier armed man. But neither of these suppositions, even if true, affords an adequate explanation; for the Swiss, in a later day, showed that infantry could withstand and defeat horsemen that were even more heavily armed and armored.

Nor can we say that the possibilities of cavalry were unrecognized in the earlier days. To do that is to assume that the ancient soldier was incredibly stupid, or, what is worse, to fall into the fallacy of considering ancient peoples as having less intelligence than those of today, than which there is no greater error, or one more likely to distort historical perspective. Against the Romans, cavalry had secured striking successes before this. Hannibal's Numidians were a scourge; the Parthian horsemen destroyed Crassus with his entire army; even Marc Antony was roughly handled by the eastern horse. The Romans knew quite well what cavalry could do under special circumstances; hence these disasters never even shook the supremacy of the infantry. Why then should infantry have collapsed after Adrianople?

The truth to this and many another historical riddle will be disclosed when we learn to read history from a psychological as well as a strictly military viewpoint. When we are familiar with the mental cement that unites individuals to form a military organization; when we study the effect that the later Roman empire had on the human mind and character, how its institutions moulded, repressed, or developed the forces of the human mind—then, and then only, shall we get the true story.

Particularly in the study of the art of war must this psychological viewpoint be maintained. We can never learn the true secrets of generalship by confining attention strictly to the physical factors of battle, such as the arrangements of units on the battlefield, equipment, and the like. Important as these factors are, they are not the vital ones. Consideration of them exclusively leaves too many questions unanswered, too many things that we have to ascribe to the genius of the commander, and thereby leave them unexplained.

In studying the art of war, the start must be made with the man who makes

up the battle unit, whether it is cohort, the *numerus*, or the battalion. First, his basic nature or quality—how he naturally reacts if not curbed by outside forces; then how this basic nature is developed or repressed by the social institutions of his time or race. The next step is to ascertain how the military system of the time took this product of nature and social institutions and used him in its formations; whether or not the formations were psychologically as well as tactically sound. Did the military get the most value from the type of individual furnished them? Did their formation and tactics exploit to the fullest his fundamental nature?

Then we can inquire how the general used his men. Did he change standard tactics and formations so that they were better adapted to the type of men he had to lead? What effect did he have on his men? Did he arouse their latent powers, or repress them? How did he arouse them; what were his methods; to what human instincts did he appeal? Finally, were his battle plans ordered with a keen eye to the psychological, as well as to the tactical and strategical? Did he evaluate correctly these intangible psychological principles, and did he utilize them to the fullest in his scheme of battle? This last involves two things: one, the ability to evaluate these impalpable forces; the other, the moral courage to base a plan on such intangibles.

Only with such study can we gain a proper perspective on the career of a general. For instance, take the life of Napoleon. He should not be studied solely as a tactician or a strategist. He must be considered in relation to his time. Only when we understand the human mind and, in the light of this knowledge, study the great psychological forces released by the French Revolution, can we obtain a true appreciation of Napoleon. Then we can see how, by word, deed, and edict, he harnessed these forces to his purpose, how they became the driving power of his armies, and how he relied on them in his tactical and strategical plans. It is no great wonder that Napoleon, with his profound knowledge of the forces of psychology and his clear conception of the military art, should go from success to success until he stood astride Europe like a colossus.

A study of generalship in any age is not complete until to the tactical handling of troops there is added a study of the psychological. To the factors of time and space there must be added the psychological factor. Here will be found the explanation of much that is inexplicable; here is where military genius manifests itself most clearly.

Psychology, then, is not a restricted subject, but is a substratum of our military life. This is the conception which this article has tried to prove. We have considered, perhaps sketchily, a number of places in which the study of psychology might prove of benefit to the Army. We have seen, first, that the basic quality of armies is psychological; that this quality is developed from a course of military training; then we have tried to isolate this quality and state it in a few words. Next we considered the psychological aspect of every-day problems, with a reference to the psychological effect of close order drill. Finally, we saw the value of psychology in interpreting military history and the art of war. The purpose of all of this was to bring out the wide scope of the subject in military life, and not with the idea that such study would revolutionize army methods, or lead to any

neglect of the physical factors of war. It was written in the belief that a study of the subject would lead to a better application of time-tried Army methods, and in the hope that Army attention would, for the moment at least, concentrate on the basic weapon of war —Man.

Even now an unknown mechanic may be developing the gun that will change our entire technique of fire; or a scientist, in the scholastic calm of his laboratory, may be working out new principles which, when applied to war, will revolutionize tactics. Thus we may have to lay aside old formations, old technique, and all our old methods of fighting, and concentrate on building anew a different scheme of war. But no mechanic, no scientist, no philosopher can change the fundamental nature of man. Man is unchangeable throughout the ages. The time that is given to studying his varied complexities will never be wasted.

SMOKE SCREEN IN FRONT OF TARGETS

SMOKE SCREEN IN FRONT OF RIFLEMEN

Smoke Warfare and the Doughboy

CAPTAIN ELBRIDGE COLBY, Infantry

The subject of smoke is receiving a good deal of attention just now. Captain Colby's analysis shows careful thought. It is very much to the point. —EDITOR.

IT IS of course obvious that smoke, the only offensive chemical warfare agent now permitted under War Department orders, deeply concerns the Doughboy. Any means of combat that hits the enemy up front on the spot where he stands is a means of helping the Infantry. So it is apparent that the foot soldier must be interested in gas and smoke, whether manipulated by attached chemical troops or by the foot soldier himself. With gas as an offensive weapon, the Doughboy is not much concerned. He does not handle it himself. But with smoke he must make himself acquainted. He carries it himself and must know its uses.

In Benning pamphlets we find the Infantry provided with smoke producing weapons and agents—and these normal to his equipment. In the 3-inch trench mortar he has a short range weapon of high angle fire, capable of delivering projectiles from defilade at rapid rates in proportion to the weight of agent handled. Its wide dispersion is not fatal to its efficiency in laying down smoke screens with white phosphorus. Its indirect method of fire permits definite concealment near the front line. For this weapon ammunition is furnished in the following proportions:

Ammunition	*HE*	*Smoke*	*Total*
On carts	66	9	75
C Tn	105	15	120
Div Tn	53	8	61
Totals	224	32	256

Up in the rifle company we find "Number Two, front rank" of every squad, eighteen men in all per company, equipped with a grenade discharger. We also find that privates are also supposed to be trained to handle hand grenades. The ammunition for these is not carried on the person, except—it is supposed—on raids. These grenades are apparently intended primarily for mopping up parties and for trench defense in stabilized conditions of warfare.

In a mimeograph concerning squad tactics, the rifle grenade comes in for mention. A mythical corporal is fighting alone with his squad. In order to silence a machine gun he sends the rifle grenadier from his squad around through folds in the ground and under slight cover. While the autorifleman fires at the front, the Doughboy with the grenade discharger works to position and thumps a grenade down upon the offending enemy weapon, just as Foch would have desired. Fix him, flank him, and hit him!

In Training Regulations 420-115, concerning the combat principles of the rifle platoon, where the grenades are mentioned almost exclusively in connection with defensive operations, there can be found the following among alternative modes of attack by a rifle platoon.

Straight to the front with one section while a small group, consisting of an automatic rifleman and two or three riflemen, works to the flank of the target.

This method is described as "usually the most effective," and in it we find the hand grenade mentioned. Sneaking up to within a few yards of the enemy, if

necessary, fighting its way up by fire and movement, the group finally opens fire at close range. "If the enemy resists, a few hand grenades are thrown into the position, the automatic continues to fire, and when the grenades have exploded, the position is rushed."

To accomplish such results, each platoon commander has six rifle grenadiers and a whole platoon of potential hand grenadiers. Each captain has in his company eighteen rifle grenadiers. The grenades are not, however, habitually carried on the person. They are back in the combat train and "issued as the situation requires."

Hand Grenades	*HE*	*Smoke*	*Total*
C Tn	228	24	312
Div Tn	144	12	156
Totals	432	36	468
Rifle Grenades	*HE*	*Smoke*	*Total*
C Tn	216	36	252
Div Tn	108	18	126
Totals	324	54	378

Here we have the Doughboys hauling smoke around with them and making but scant provision for its use. The reason for this aversion may have come from the World War. At Madeleine Farm, the 3d Division—I am told—found that a smoke curtain in front of their attack can be expected to draw heavy concentrations of enemy artillery. The British "Manual on the Use of Smoke" (1923) says:

Smoke grenades must not be discharged merely in front of the advancing infantry. . . . Smoke is almost certain to draw heavy fire. . . . The principle of smoke tactics is to deny to the enemy the power of aimed fire or of observation, or both, without hampering the action of one's own troops. . . . By means of smoke, judiciously used, the conditions of night can be artificially imposed on the enemy for a definite period during the attack while the advantages of daylight are retained by the attacking troops.

However, nowhere in that comprehensive little manual did there appear in absolutely clear-cut fashion the most vital fact in the whole of smoke theory. The British manual spoke of smoke grenades, smoke candles, and smoke bombs for 3-inch Stokes mortars. It spoke of the dangers of attacking Infantry losing direction if enveloped in its own smoke. But it did not specify in positive language where the smoke cloud should best be placed.

In the August, 1928, issue of the INFANTRY JOURNAL, a military writer discourses at some length on the subject of smoke. After calling this the most important of chemical warfare agents with which Infantry is concerned, he says:

The Infantry should decide what it needs, and when and where. To charge any other branch or service with the duty of prescribing how and when the Infantry is to use chemical warfare materials would admit of possibilities of unsound and impracticable use of these materials (p. 123).

It is not the function of an outside service to recommend smoke for the Infantry. The Infantry, knowing the advantages and disadvantages of smoke as produced by its own means (for example, the infantry mortar), should decide whether or not there is a tactical need for smoke (p. 124).

The need for smoke (the material being developed by the Chemical Warfare Service) can be determined by the Infantry itself, and not by the Chemical Warfare Service (p. 124).

To the Air Corps and the Chemical Warfare the writer of that article hands the task of considering the screening of units in rear of the Infantry units engaged in combat, and these only.

Now it so happens that the Infantry has had its smoke projectile allowances

in grenades and mortar bombs for some years. Yet we have never come to any conclusions of any valuable character as to their proper use. In the Chemical Warfare Service, charged specifically by law with "supervision of the training of the army in chemical warfare both offensive and defensive" (act of June 4, 1920, 41 Stat. 759) they have been making some progress in the matter. An article entitled "Tactical Considerations on the Use of Smoke" in the issue of *Chemical Warfare* for November 15, 1922, stated:

> It is invariably desirable to bring the heaviest concentration of smoke directly upon the enemy force and blind his observation. The early use of smoke was rather different from this because the purpose then was to screen the force putting down the screen.

In the same magazine, issue of February 15, 1925, Major C. R. Alley and Major Leigh F. J. Zerbee pushed the idea out with relentless logic. They said the object of the fire fight is fire superiority. If smoke is between the two forces, it has the same effect on both and does not affect fire superiority. They said that if the enemy is in a smoke cloud you can still fire at the cloud and stand a good chance of getting some hits; at any rate you'll make him keep his head down and lower his firepower as well as his helmet. They said that if you put the cloud around your own head, you lose more sense of direction and your shooting is wild. In the meanwhile he can be shooting at the cloud around your ears and getting "average dispersion."

At the Chemical Warfare School they took this matter seriously. They have a regiment in the Chemical Warfare Service, and they wanted to find out how to train that regiment to use the smoke bombs provided for its 4.2 mortars and for its Livens projectors. So they fired some tests. Lieut. John C. McArthur, C.W.S. (Inf.), told of these tests in *Chemical Warfare* for November 15, 1925, and his remarks were reprinted in the INFANTRY JOURNAL for July, 1927. The Chief of Infantry himself got interested in the matter and has spoken of the results of these tests several times. His leading article in the January, 1928, issue of the INFANTRY JOURNAL, displays his convictions on the subject. In March, 1928, the Chemical Warfare School published in mimeographed form for the use of students at Edgewood Arsenal the result of some years of study, experiment and test on the use of smoke on the battlefield. That document assumed, in view of the published pronouncements of General Allen, that the Infantry tank would be equipped with smoke producing apparatus and would use it as General Allen suggested. It spoke but briefly of smoke as used by rifle grenadiers, artillery, and tanks. It was a very full and complete discussion of the effect of smoke on the battlefield, its advantages and disadvantages. Twenty pages of text replete with clear illustrations made the subject clearer than it has been presented to date. Its author, Major Zerbee, has made no bones about the tendency of smoke to draw fire, or about the likelihood of losing direction when marching through smoke. He has not failed to emphasize the large number of occasions and conditions of wind and weather which would make smoke undesirable.

But he has presented vividly the essential fact. This may be stated in condensed form as follows: If unobscured troops have a fire efficiency of 55 per cent hits on an unobscured target, they would have a fire efficiency of 12 per cent on a smoke covered target. With

smoke on the troops firing, instead of on the target, the fire efficiency is reduced to 4 per cent. In other words if you put smoke down to "protect" your own troops, and enshroud them in clouds of obscuring smoke, they will get only four hits out of every hundred shots while the enemy in the open firing at your men in the cloud will get twelve hits out of every hundred shots. In war you must not be an ostrich. Put the cloud on him, and you'll get the twelve hits to his four hits. And twelve to four will help a lot in giving you fire superiority.

No wonder the British manual said: "Infantry are particularly concerned with smoke tactics." If these ideas are sound, as we have no reason for doubting, the following words, written in 1919, are correct:

> The battlefield of the future will be covered with smoke. . . . Smoke becomes one of the great elements of war.

The Chemical Warfare Service, and the magazine of that service, have done the Infantry a good turn in determining these basic and important facts. Whether or not we will decide—as the British have—to carry smoke candles and to use them for the creation of small units, is a matter for consideration by Doughboy experts on tactics and supply and transport matters. It is time to take account of these important new developments as to the value and use of smoke. We must reach early and definite decisions as to whether the proportions of smoke and HE in grenades, rifle grenades, and 3-inch trench mortars should be maintained as the present pamphlets give it, should be eliminated, or should be increased.

The present amounts are so ridiculously inadequate as to be almost laughable. The Infantry Stokes is provided with 12 per cent smoke; the hand grenades are 7½ per cent smoke; and the rifle grenades are 14¼ per cent smoke. With the smoke rifle grenades available for his platoon, the lieutenant can do very little. He can get from the trains three only for each discharger. His "forward" section on assault will probably be pinned to open ground in a rifle firing position. His "maneuver" section, which alone can move to proper position for delivery of rifle grenade fire, will have only nine smoke projectiles at the most, and probably far fewer than these up forward—unless some genius has foreseen what will happen and had all of them brought up from the trains for the particular tactical situation confronted. Suppose, though, he has his maximum of nine. His nine grenades fired three at a time will maintain that for him not more than six minutes, and there is little if anything he can do in six minutes.

The paucity of the supply for any practical smoke purposes is further illustrated when we come to consider anything at all effective in the way of a screen. In granting six minutes of smoke, for each section we were perhaps much too liberal. It seems almost apparent that a mere burst is not sufficient. A single puff will not do. We must have a long curtain. There must be many projectiles thrown before we can make a real screen or blanket. As the result of careful tests, the officials at Edgewood have calculated that it takes two of their 4.2-inch trench mortar bombs to maintain a 100-yard screen for one minute. The bomb is bigger than the grenade. It carries nine and one-half pounds of white phosphorus to the nine ounces carried in the rifle grenade. Its effective screening area is 50 yards per burst, as compared to the

15 yards per burst of the grenade. Suppose, then, we assume that the platoon wants a local, temporary screen for a few minutes. One hundred and fifty yards would be the minimum, and even that is little enough. Says the British manual: "All smoke screens should, on principle, be prolonged beyond the limits of the front selected for attack." Yet, we shall take the 150-yard figure. It is readily divisible by the basic statistical digits. It corresponds approximately to the front upon which a platoon may be required to advance.

Let us then take a platoon and have it advancing along typical open terrain. There will be inequalities in the ground, slight but sufficient for rifle grenadiers to use for cover. The platoon has its full allotment of eighteen smoke rifle grenades, including those from the combat train and the division train, three for each of the six "Number Two, front rank" men equipped with a grenade discharger.

Each grenade will cover 15 yards for two minutes. If all six men fire simultaneously, and if, in a nice evenly spaced line, the six bursts will blanket only 90 yards of the enemy's front, four of the grenadiers will have to fire again immediately, to fill out the 150 yards desired. But the screen will last only two minutes, and the ammunition is more than half gone. There are actually not enough grenades left to fire another complete screen.

This analysis makes no demands for extending the screen or blanket beyond the immediate limits of the front selected for the attack, as the British manual would require. It also assumes that the screen or blanket is perfectly fired, perfectly spaced, and that the smoke is even and without gaps. The Chemical Warfare people say in their school mimeographs that the nine and one-half pounds of white phosphorus in the 4.2-inch trench mortar will burn for two minutes, and that its burst covers 50 yards per projectile. But they calculate their figures for field work with margins for safety. They calculate the effective life as one minute only. Our platoon commander has had every concession made in his favor. And even at that he has not the smoke to do his job. It is a hard job. Any Doughboy who tries to do with nine ounces of white phosphorus what the chemical mortar can do with nine pounds, must certainly look to the problem of ammunition allowances. Three projectiles per rifle grenadier in the rifle platoon, section, and squad will not do the job. With present figures, the screen or blanket will be too thin in texture, too short of measure, and too brief of duration. If any smoke at all is to be carried, it ought to be enough to be effective at least in one operation, for the unit to which it is allocated.

We must consider these facts. It is time to learn how much we can depend upon the Chemical Warfare Service, with its projectors and its mortars at ranges of 1,500 to 2,500 yards, and upon the Air Corps, with its improved spraying apparatus, and how much we must depend upon our own supply, our own facilities, and our own shooter range weapons. It is time a comprehensive Infantry tactics on smoke with grenade, bomb, and candle, were developed. It is time supply were adjusted to the new facts and the future doctrine. It is time to go to work.

Handling a Combat Company

CAPTAIN EDWARD M. CONNORS, 101st Infantry, Mass. N. G.

These notes of an interesting lecture delivered by a National Guardsman to National Guardsmen are worth a careful reading by any company officer.

—EDITOR.

THE purpose of this lecture is to emphasize the importance of the two vital elements necessary to produce an excellent combat unit. I do not intend to embrace tactics, but may occasionally touch on it. We find in considering this subject that organization is an act of disposing and combining constituent parts into a coordinate whole. The two elements upon which a combat organization unit is based, and upon which it depends for success, are tactical employment and methods of command.

1. Organization for tactical employment depends upon the character of service that the various combat units are to perform either separately or collectively.

2. Organization for command is based on the factors of control, discipline, and administration, but I do not intend to embrace the subject of administration in this lecture.

The elements for you to be most interested in are discipline, control, and leadership, which are of the most vital importance, and predominate in battle. But we must also consider tactical employment, because there will be times when tactical requirements will not harmonize with those of the upper command, and it will be compulsory for you to extend your tactical talents as a leader to accomplish the purpose.

Today the company combat unit is the basic unit of the infantry organization, and the principles of organization that apply to it are applicable also to the battalion. It must possess fighting power in the first instance, strength and capacity to enable subdivisions which can sustain action independently, at the same time solving appropriate problems of combat in the second, and remain, even after disastrous losses, a fighting unit.

Analysis of conditions with a knowledge of the mission to be performed determines how the company should be organized most efficiently. Following the general rule, companies are a part of the general line without flank extremities; but when action is at its height and the enemy line is broken, a series of tactical localities arise, thus presenting what may be termed local flanks. This is a stage of the battle when a knowledge of tactics will eliminate losses. The usual maneuver for reducing these local points of resistance will be enveloping them, using basic infantry movements of fire and movement. This I intend to point out more clearly in the closing phase of this lecture. So you will keep continually in mind that discipline and tactical knowledge are the secrets of success for a combat unit.

Now let us survey briefly the nations of antiquity. The thing that impresses us most forcibly is the perpetual wars in which they were engaged, and the fact that military art and science were among the earliest things that employed the thoughts of men. The first act re-

corded in Hebraic history after the expulsion of Adam from Paradise is a murder. In patriarchal times, we read of quarrels between petty kings and chieftains, where they journeyed. Before Abraham was born, violence was the greatest evil of the earth. We find two great and powerful military states in prehistoric times, Babylon and Egypt. The earliest known art, therefore, was the art of destruction. In the very infancy of society we find men, through the force of brutal passions, warring against one another.

But wars of the early ages were not carried on scientifically. We do not read of military discipline, or any trace of strategy, or a knowledge of tactics. Generally the battle consisted of a hand-to-hand struggle in which the strongest and bravest gained the victory. In order to learn of the earliest development of the art and science of war, we go to Egypt, where it was first accomplished. Here we find the first organization of physical forces for both conquest and defense in the nature of a regular army formed under the direction of one leader, Rameses the Great, about 1700 years before Christ. This old monarch showed great ability in gathering large bodies of men and controlling them rigidly. He accustomed them to hunger and thirst, fatigue and suffering. While he inured them to hardships and danger, he was always careful to win their affections by acts of generosity and clemency. He did not hesitate to subject his army to a strict discipline and an uncomplaining obedience to orders, the first principle in the science of war, which no successful general in the world's history has ever disregarded, from Alexander to Foch.

He soon learned to subdivide his forces into regiments, battalions and companies for the purpose of tactical employment. The infantry phalanx, as it was called, was formed of twelve men deep, including bowmen, spearmen, slingers, clubmen. All their weapons were offensive and used in the attack, while they used a shield as their chief defensive means. The infantry, when employed in the assault of fortified towns were provided with shields, under which cover they made their approaches to the places to be attacked. When the attack was launched they advanced under the cover of the arrows of the bowmen and instantly applied the scaling ladders to the ramparts.

Now let us deviate our attention for the moment to the late war. We find the German soldier adopting for his defense a heavy steel helmet, and also a vest of bullet-proof steel. In our own assaults, did we not manuever similarly to the Egyptian army? Our Infantry advanced under the cover of the fire of our Artillery and machine guns, and had it not been for the invention of gunpowder and rapid-fire guns, it might have been the fire of bowmen and rock-slingers that protected our advance. So in this early day we have the two most vital elements for the organization of combat troops, discipline and tactics.

Moving along in history, we find a striking example of these two elements, when the enormous forces of the Persians were marshalled against Alexander. We find the Persian army intoxicated with victory. It possessed no discipline or knowledge of tactics, and the individual health and strength of the army were impaired by habits of a low order. Nevertheless, it was moved in mob fashion against that skillful leader, Alexander, so outstanding in ancient history. Alexander, with his

army that was so much smaller in numbers, through the perseverance of tactics and discipline easily dispersed the Persians.

We must turn for the next remarkable improvement in the art of war to the Spartans. In addition to their rigid military discipline, they introduced several phalanx military formations. One consisted of files of selected soldiers eight deep, placed in ranks of eight, with intervals of approximately 6 feet. They learned very quickly that a formation of this nature combined solidity and powers of resistance with mobility. It proved impregnable and irresistible. Later on, they developed another phalanx sixteen files deep for the purpose of forming a wedge and penetrating the enemy line. Also they were successful with a cavalry phalanx, which is not so important to us at this time. It might be interesting to know that Napoleon used these tactics successfully against the Austrians in his Italian campaign. Therefore again we learn that a rigid discipline and a concentration of forces which possess a knowledge of tactics make an army steam-roller.

Then we see, as we jog along still further through the pages of history, the great Roman army with its rigid discipline and perfect organization. It was divided into regiments, companies, squads, I dare say almost as perfectly as ours in the last war. It fought victoriously, subduing the world and maintaining its power for hundreds of years, and today we surpass it mainly because of the use of gunpowder and modern weapons. The Roman legions were perhaps the most perfect combat organization, and I certainly recommend the study of its discipline and methods of combat. The story of one of their greatest achievements is that of the accomplishment of the fall of Jerusalem. I remember studying it in the school of tactics. Jerusalem was defended by a gigantic triple wall with elaborate fortifications, yet it fell in four months. Considering that the Romans had no artillery, how great the discipline and military art in the accomplishment.

Our tactics of the late war were by no means of over-night origin, but a similar import of Roman strategy. In my casual checking of German tactics on certain occasions, I found an acute similarity between the German army machine and the Roman legions.

I plead with the younger officers to take their tactical knowledge from the old masters. I wish to amplify the importance of it. Today it is hardly possible to acquire such knowledge during the usual course of training, but it must be gained independently and in the officer's own time as a hobby. Almost invariably, the given time allotted to the training of troops is devoted, after acquainting the National Guardsman with his new tasks, to the mechanics of close and extended order. No time remains nor do schools exist where the great numbers of junior National Guard officers may ascertain a substantial knowledge of military art.

For this reason, I do not intend to leave you with the Roman legions on the remote pages of history, but offer the deeds of two great soldiers of modern times. The study of Napoleon and his Imperial Guard will give you valuable instruction concerning discipline and leadership. Napoleon, even with his stern methods, was always the recipient of his men's affections. You will find him superior to all beneath him, but attentive to the wants of the lowest rank in his command. I mean that Na-

poleon, even after disciplining a disobedient soldier, gave after thought to his care and attended to his wants.

This is where many American officers fail as leaders. You must remember that when a man becomes temporarily separated from a command by reason of punishment inflicted, you must not add your personal feelings to the extent that it will separate him from the cause, either mentally or physically. We find an example of this when, on a man's first enlisting, through breach of orders he inherits the captain's prejudice. Through the remaining years of his service it seems that in the captain's eye he is never elevated to the level of the other men. An act of this kind impairs a man's thinking power, stifles his morale, and causes him to desert the cause. Of course this is the case of only one man, but with the strength of sixty, a leader of this type can easily render the same act upon the other fifty-nine.

I remember a captain who had a mighty fine company. One day a private had been absent from the regular drill period. The captain set a punishment which was to be performed each day outside of the regular drill period, the duration of the penalty to be five days. The next day this same soldier begged to be excused from drill on account of sharp abdominal pains, but the captain forced him to proceed. On the drill ground he collapsed, and after an operation for appendicitis he died. The story spread through the entire command, and the captain was forced to leave. He had lost the affection of his men, disrupted their morale, and extinguished every thought of loyalty to the cause.

You must bear in mind at all times that the Government has bestowed on you power to exercise a punishment for minor offenses, but never allow your personal feelings to be coupled with it. Always in enforcing discipline you must be careful to hold the respect and affections of your command. Napoleon was a marvel in this regard.

The other character I offer solely for the purpose of calling your attention to his tactical knowledge. His fame is still ringing in the ears of the world. Perhaps there is no greater leader in the Hall of Fame than Marshal Foch. His famous maxims are inspiring:

"Of all mistakes, only one is disgraceful—inaction."

"A battle won is a battle in which one refuses to accept defeat."

These two maxims remind us also of Frederick the Great's remark:

"The most obstinate wins—that is the true source of success."

It seems strange that such a man should stand aloft in his policy of attack, in a nation almost to a man reconciled to the policy of defense. It had been the general belief in France since the Franco-Prussian War that with the modern rapid-fire guns it is easy to maintain supremacy from a defense position. You will find Foch's ideas useful to you because they are based on the principles of attack, and because they show that he was a student of other successful generals. I offer for study his two precious books, "The Conduct of War" and "The Principles of War."

Now, if you will agree, for the purpose of this discussion, at least, that discipline is of vital importance, we shall turn to the remaining phase—tactical employment.

First, we shall dispose of our company in triangular system on the line of departure. At this stage of the game there are no flank extremities. The high command did not intend any, nei-

ther does it anticipate any, but we have learned that there will be times and situations which will not harmonize with the ideas of our superiors. As we advance we find the enemy's line broken, either by the force of neighboring units or for reasons of his own. Unexpectedly we find that the unit on our right has not advanced. Here we have a flank tragedy, a local flank which, if it continues to exist, may allow the enemy to annihilate the command. In this situation, with no discipline and no knowledge of tactics, you will perish. With a rigid discipline and a scant knowledge of tactical employment, perhaps you will survive. At this point the leader must grasp the situation and estimate the possibilities without hesitation. His primary duty is to remove the enemy's resistance. This he can accomplish in his own humble way if he thinks it best, but the general rule for reducing such local points of resistance will be to envelop them, utilizing the basic combat operations of fire and movement.

The triangular system affords the best possible means under such circumstances. In this formation, with two units in front and one in the rear, you can use the whole or part of the rear unit to accomplish the purpose. The main thing to remember is to be economical in the use of man power and the use of ammunition in order to succeed and yet keep the cost at a minimum. In any event don't be a "tightwad" in sparing the expense, because the strong point must be silenced and the line must move on.

Perhaps you will find occasions when the enemy will execute such movements for the purpose of having you enter his deadly and enfilading fire. All day long during the conflict, these local tragedies occur If it were not for them, knowledge of tactics would be unnecessary for you.

We shall now turn to the company engaged in defense. We have here the company disposed on a general line constituently with neighboring elements. In this position, flank extremities generally do not exist, but nevertheless we will find that such locations may not harmonize with the general plan of the high command. In disposing of our troops, the nature of the terrain and the mission to be performed govern, but these circumstances may give you exposed flanks. The company is disposed in the triangular system, which will best conform to the ground. Apparently where most young officers make a mistake is in disposing of the support. Many believe the support is similar to an ammunition dump, or is in the rear hanging on a hook, where you merely go occasionally for replacements or replenishments.

After disposing of the advanced two elements in positions with an excellent field of fire, it is necessary that the support be placed in a position which will afford it also an equivalent field of fire. In such a position it will be able to function at the proper time concurrently with the front units and, with its fire, cover the threatened flanks independently of the constituent units. In order to do these things the leader must have a knowledge of tactics. He must know how to strengthen the positions of his neighbors by arranging his fire across their fronts. They, too, may be expected to do likewise. This he need not worry about, because the adjacent commanders are also tacticians.

We know from experience in civil life, that when a man erects a building or paints a picture he generally stands off

to note its excellence or its defects. You can't go over to the enemy's lines to look over the position you have just organized unless the enemy commander happens to be a relative of yours. So I think the best plan is to turn the map around and place yourself in the enemy's position. By doing so you get a general view of your detailed dispositions. You will then see your advantages and disadvantages and can easily conclude what the enemy might do, for he, too, is a tactician. This fact is obvious, because all tacticians think along the same lines. If he is not a tactician, you need not worry, because you will annihilate him.

As time goes on, such a position becomes an elaborate fortification. Oftentimes it appeals to the student in preference to the formations of attack. Perhaps this is due to the grand display caused by building of fortifications. Soldiers in a defense position, if allowed to remain long enough, will even carpet the floor of the dugout. They become so familiar with the position that often it is hard to convert them to the idea of attack. We are not fond of this type of warfare in our Army, but we must have sufficient knowledge to be able to hold such a position till our superiors have changed their plans.

I do not intend to go into the detailed dispositions of the defense, such as the line of security, observation posts, and so on, but I do want to emphasize the necessity of a position organized to constitute an impregnable point of resistance.

All day we advance in the attack, meeting tactical localities, and through our tactical skill we conquer them. At the end of the day, when hostilities have ceased temporarily and we know they are to be renewed next morning, in order to hold what we have taken we must organize a suitable defense. Even though it be but a one-night stop, the defense must be so strong that it will resist any sudden outburst or counterattack of the enemy. Where this idea of digging for field fortifications originated, I do not know. I do know that the Romans, during the wars of Hannibal, not only placed themselves beneath the level of the ground at night but did likewise for their horses and wagons.

The most serious thing that can happen, and one which we can always expect, is the enemy's counterattack. What is a counterattack? The best definition I know of is one illustrated to me by a French tactician. On this occasion he hit me in the jaw. I did nothing. He said to me, "I will hit you once again and, when I do, strike back." This I did, and my retaliation sent him spinning on the ground. So it is with the enemy's counterattack. You may hit him and force him back five days in the week and he may not strike back, but on the sixth day he may come back with such force that he will envelop our lines and send us back to where we started. It may be said that during the combat the enemy has an eagle eye out watching for those troops that do not strongly organize at night. When he finds this position, he will concentrate his forces, well fed and well rested, and advance them to penetrate our line. If we are not strongly organized, his counterattack will be successful. He will not only force a deep wedge into our positions but will soon envelop the neighboring units. A successful counterattack is like fire; once it starts, nobody knows where it may end. I am always reminded of counterattacks, or, for that matter, of attacks in general, in civil life when the straw hat season comes to

an end. Notice that a person, in destroying such headgear, first pushes his fist through the crown; then, having made an opening, he grasps the rim with both hands and pulls the remainder apart. The instinct of attack is always in the human mind, and the manner in which we exercise it depends upon subject matter and circumstances.

I have no fear that you will fail to acquire a knowledge of tactics. I hesitate in my decision regarding your success in the methods of command. It is difficult to handle the unknown numbers of human frailties. To be successful in command one must possess a knowledge of it. Like two blades of grass, you will find two soldiers, although somewhat similar in appearance, entirely different in other respects. The secret is to understand every individual in your command. Maintain a solid discipline coupled with a love of the command.

There is nothing to prevent you from absorbing the affections of your men to the extent that they will love their leader. Do not, above all, base your method of command on fear. An example of this was seen in the Russian army, where the soldier was bound to the cause solely by fear. You well know what happened when the soldier got a chance to revolt. The German army also held its soldiers by fear of their superior officers, but not to the same extent, because of the *esprit de corps* of the individual soldier for the Fatherland. In both these cases the thinking power of every individual was impaired. Whatever your methods may be, above all things never stifle or extinguish the thinking powers of the individual soldier. At all times allow him to contribute his share to the solution of the problem. Do not ridicule his suggestions if they are absurd, but discard them in such a manner that he will not be discouraged to present another idea. Recently I read about a person who became a great author after struggling for fourteen years in the literary field. Had this same individual been discouraged by the publisher in the beginning when he submitted poorly written manuscripts, he would never have achieved the distinction. The same line of reasoning applies to the individual soldier.

So let us all leave here today agreeing that in order to achieve the proper method of command we must earnestly try to gain the affections of our men. There must be a respect of leader or a love of regiment. I believe that, in our own particular case, love of regiment would speed the result. This can be based on the noble deeds performed by the regiment during the past wars, and the individual must become familiar with them. These noble deeds, in the accomplishment of which so many gave all, are cherished by the living members who are so incapacitated they cannot be here today but have delegated the task to us. These men have a right to come here and ask for an accounting of our work. In justice to them it is for us to keep sacred their traditions and never allow them to be smirched by our inability to perform as ably as they did.

If we create in this regiment a combat unit based upon discipline and love of regiment, with every soldier a thinking machine and every officer possessing a knowledge of tactics, the fighting strength of this regiment will be irresistible. The 101st Infantry will not only conquer but will never be defeated.

Stepping Back Through Time

FRANCIS DICKIE

The story of the Gauls' last stand against Rome shows that modern methods of warfare conform to the same principles as those of Caesar's time, and that any differences that exist are merely a consequence of improved equipment.—EDITOR.

YOU alight from the most modern of electric trains at the little French town of St. Germain-en-Laye, half an hour's ride from Paris. Stepping out of the station entrance you are confronted with the vast looming bulk of the castle of the same name. Part of it was begun in the year 1122; St. Louis enlarged it and built the chapel which was inaugurated in 1238. Until 1540 all the kings of France lived in the castle from time to time. In 1514 the daughter of Louis XII was married to François l'Angoulême, who later became Francis I. Francis lived twenty years in the Castle of St. Germain-en-Laye and built most of the present structure in the purest style of the Renaissance; but the original chapel of 1238 remains today little changed after 700 years. In 1548, Mary Stuart was brought up at St. Germain-en-Laye with the children of Henry II and Marie de Medicis. The court occupied the castle until 1664, during the reign of Louis XIV, until Versailles was built and ready to receive its royal hosts.

You pass through the great entrance of the castle, and at once begin moving back through time. Before you lie acres and acres of vast rooms, connected by magnificently arching Gothic corridors of red brick, rooms in which you walk once more in the ages of stone, bronze, and iron. Here in wonderful array are examples of all the tools of peace and the household articles of the ancient Gauls. Here, exactly reproduced, are the deadly engines by which Rome conquered the warlike Gauls, and here, too, are miniature reproductions of famous battlefields of old.

The collection makes vivid to the modern eye just how those men in early France conducted the business of living. To make this possible French archaeologists and historians have been digging for nearly a century through the fields of central France, and have studied all the writings of olden times so as to make visual ancient history in a form as nearly exact as possible. To house the results of all these researches taken from the open field, and the replicas of warfare built on the authority of precious old manuscripts, the castle was turned into the Museum of St. Germain-en-Laye in 1867, under the name of Museum of National Antiquities. It now contains the greatest possible variety of specimens of the art and industry of the Gauls, from the most ancient times until the period of the last Merovingian Kings. Here is a complete picture of the Gauls before the time of written history.

In that section of the museum devoted to the pre-historic period, from the unknown past to the year 500 B. C., the most interesting objects are rough-surfaced axes of stone, flint arrowheads, spear points and stone vessels, all surprisingly like those used by the Indians in North America.

A ROMAN WARRIOR OF 52 B. C.

The period between the year 500 B. C. until the conquest of Gaul by the Romans is illustrated by some ten thousand objects. Here in long rows are swords and helmets of bronze, bracelets, safety pins, bits for horses, all well preserved by reason of the resistance of bronze to rust. The safety pins, rings and bits are very like those we use today.

The third period, those years from 500 B. C. until the conquest of the Gauls by the Romans, was the time of the merging of the bronze and iron ages. In scores of cases are the iron remains of nails, bolts, locks, belt buckles, metal parts from harness, and various bodily ornaments, but far less well preserved than the more ancient bronze. Here again the onlooker is struck by the similarity of the ornaments, bolts and nails to those we use to day.

The last period covers the Gallo-Roman epoch, from the year 50 B. C. until 450 A. D., when Gaul was being dominated by Rome. In this age many Greek and Roman writers resided for a time in Gaul, and so it is of these times, marked by wars, that the visitor to the castle's rooms gets the finest picture of single combats, of multitudes in battle, and of the methods and engines of war which, though crude in many respects, still directly foreshadow the great weapons of destruction that men used in the World War.

Since nearly 100,000 objects are to be seen in the museum, nothing more than the above brief review could possibly be given, reserving the major portion of this article to deal with the days when Caesar's well-trained legions clashed in final desperate struggle with the savage Gauls upon the hills and plains around the city of Alesia. This was one of the great turning points in European history. And, due to the years of research on the part of many men, impressive pictures of these days have been drawn, that last vital encounter prepared for our eyes.

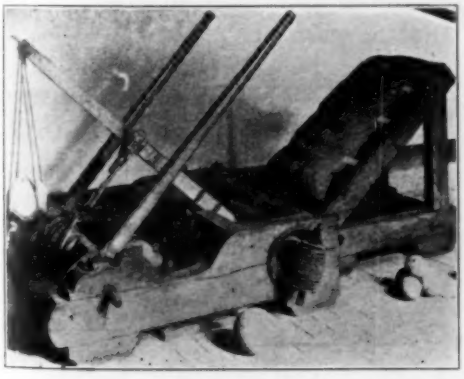
Thanks to the bas-reliefs still in Rome, carved at the order of Emperor Trajan, there is to be seen in the castle a model of a Roman soldier who fought in the wars in Gaul, the model the work of the great sculptor Bartholdi. This soldier wore a helmet of iron, with a leather chin strap. The armor is of iron bands made very flexible. The apron is of leather covered with metal. Caesar's soldiers were not braver than the Gauls, but their discipline was better, their weapons were superior. But their chief strength lay in that they were more able at building fortifica-

tions and trenches and machines of attack, and that they were better fed. This last factor Napoleon centuries later fully realized when he voiced his famous phrase: "An army travels on its stomach." It was their abundance of food which gave the Romans their final victory in Gaul, the description of which will be briefly attempted here.

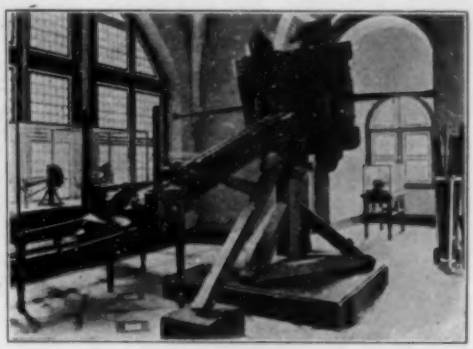
As one studies the various descriptions of the battle of Alesia, the impression comes ever more strongly of how similar were those ancient methods of warfare to those of the last few years. Perhaps some day soon mankind will succeed in ending war forever. A study of the methods of the Romans shows clearly how our modern ones are merely improvements on those of ancient days.

The Roman artillery consisted of machines called *onagra*. An *onagra* was a stout framework of wood working on the principle of a sling. It threw stones about the size of a man's head a distance of 100 yards. The machine was worked by two men, handling levers that drew back a wooden arm which, when released, struck against a padded surface. The picture shows in great detail the *onagra*. These were carried on poles by six or eight men.

The machine gun of those times was



THE ONAGRA

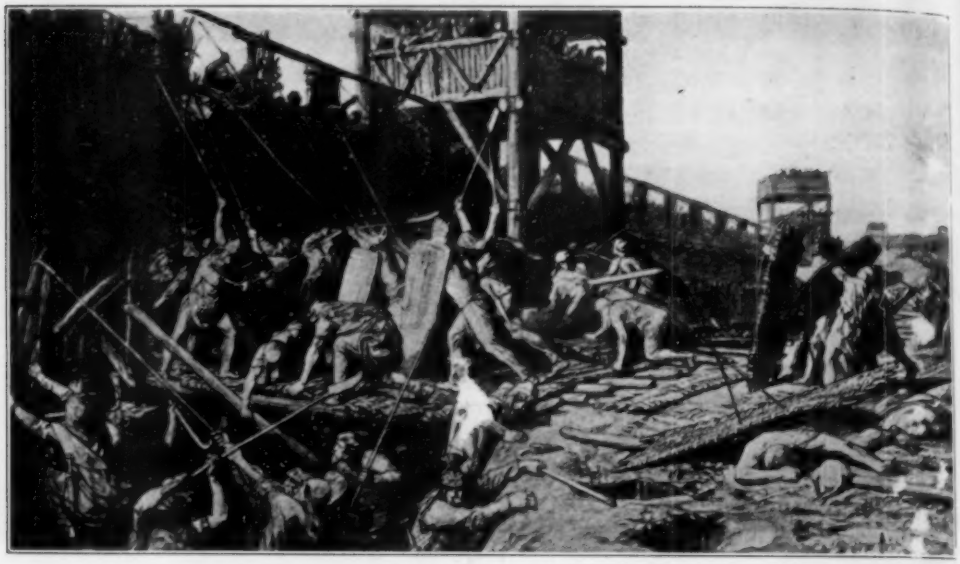


THE BALISTA

named a *balista*. It was a large instrument of wood, the arm of which held a huge cross-bow. It could be turned on a pivot. The bow shot very heavy spears a distance of 1,000 feet. The enormous tension required to operate the bow was obtained by winding it up with a windlass and cog arrangement. When archaeologists dug on the site of Alesia, the chief town of ancient Gaul, they found a few of the hardwood shafts shot by the *balista*, and hundreds of the carefully rounded stones used as ammunition in the *onagrae*.

With an idea of how the Roman legions were equipped, now step through the centuries back to those momentous days in the year 52 B. C., when the armies of the Gauls had gathered in a last stand against the invaders. The Gauls, more lightly clad than the Romans, were commanded by a young but exceedingly able chief named Vercingetorix. After many weeks of fighting, the Gauls were forced to retreat. Vercingetorix with a small army fell back upon the city of Alesia and took up its defense, while the remainder of the Gaulish bands settled in the hilly region surrounding the city.

Upon the city of Alesia Caesar came marching with *balistae* and *onagrae*, and 10,000 hardy men. Upon the roll-



THE GAULS ATTACK THE ROMANS

ing country close about the city Caesar's men dug miles of trenches between themselves and the city, the better to meet any counter sallies from the defenders. Behind his army Caesar had made still more miles of trenches, all of these in turn protected by a ditch filled with water from a diverted stream nearby. The second line of trenches was a defense against the straggling lines of Gauls hovering at Caesar's rear.

The Romans built still further defenses in the form of wooden ramparts and entanglements of branches at the tops of the trenches. Along these, every 70 feet, wooden towers were raised, capable of holding fifty men. In the trenches below the towers were rows of barbed stakes to arrest further any onslaught of the Gauls.

Again and again did Vercingetorix and his men sally forth from the city and with despairing valor give battle to the Romans. They built light, movable bridges which they carried and threw across the trenches. Then, protecting themselves with bullhide shields, Gauls tore at the protecting ramparts of the Romans with long crooked sticks. At the same time the Gaulish bands, from the country beyond the outer trenches, charged ever and ever again. But the Romans, calm, and with the training of years steadying them to a perfect defense, repulsed each onrushing wave of the hardy Gauls.

Five days and five nights the carnage continued along those miles of trenches. But the outer line of the Gauls, insufficiently fed for weeks, and at last without provisions, was forced to withdraw and disperse in search of food. Within the walls of Alesia, all means of resistance also reduced to nothing, Vercingetorix and his starving men surrendered to Caesar. The great days of the Gauls were ended.

Francisco, and Atlanta. The associa- of the transmission facilities, how-

Public Opinion

Transmission of News

CAPTAIN WALTER B. CLAUSEN, M. I. D. Reserve

This article is the last of a series on the subject of Public Opinion. This series should be of real value to publicity officer, for the author, who is a staff correspondent of the Associated Press, gives them the benefit of his years of experience.—EDITOR.

PUBLIC opinion, as we have found in preceding studies presented in the INFANTRY JOURNAL, has its foundation upon news. It is controlled largely by the trend of news. The characteristics of news, both in its printed form and the news of camera, have been evaluated in the preceding studies. News transmission, its collection and dissemination, therefore, become a subject worthy of study.

This subject well may be divided into three parts—telegraphic, mail, and newsreel. The collection and distribution of news is a highly organized business in the United States. It operates continuously in all three classifications. Perhaps the best known and the most active of these classifications is the first, the telegraphic, which embraces the press associations.

Press associations are nationwide agencies, with worldwide networks, which enable the newspapers to bring to your breakfast table a daily word picture of world information. Keeping pace with science and invention, they are most interesting manifestations of the speed in which the present generation lives and of how small science and invention in this progressive age have really made the world.

The major press associations in this country, and in fact in the world, for the United States leads the world in handling of news, are the Associated Press, the United Press Associations, and the International News with its component night service, the Universal Service. Day and night throughout the year these associations operate continuously. There are numerous other more specialized and less widespread organizations in this country engaged in similar work.

These major agencies operate their own leased wires in networks that extend to all corners of the nation and throughout the North and South American continents and to the insular possessions of the United States. Well organized, highly trained operating forces of these associations man the high-speed automatic machine transmission as well as the supplementary manual Morse telegraphic circuits. Their main duty is the telegraphic transmission of news, but they also maintain mailing feature service departments, a very important auxiliary service.

In addition, they have intensively gone into the work of transmission of news pictures, embracing the dissemination of news photographs by telephoto wire, by airplane, and by mail. They have active, instantly available, and always alert contacts in every corner of the earth.

The main executive and divisional executive offices of the major press associations are in New York, Washington, Chicago, Kansas City, Denver, San

ceive daily many times the amount of

mail news include the mailing feature

Francisco, and Atlanta. The associations also have strategic news centers in all the important cities of the nation. The main offices enumerated above are likewise major news relay points. Other news relay points where these agencies have their own separate offices are known as bureaus. These news relay points are the nerve centers of the system, at which all news is re-evaluated before relay. There is a staff bureau in practically every city near an Army post.

Every newspaper that receives service from a press association constitutes an agency where news may be placed in the service, for the associations have a representative on the staff of each newspaper in cities in which they do not maintain association staff bureaus. In practically all cases the bureau of an association in a city is located in the office of the largest local newspaper that takes the particular service. In the larger cities these bureaus often have two offices, one with the morning newspaper and one with the evening newspaper. Information can be obtained from a newspaper that takes a service as to the location of the staff men or local correspondents of the press association.

The general system for immediate transmission, telegraphic, is similar in the three press associations. There are the main-line trunk wire systems that extend across the nation, linking up all the major cities. These trunk wires have major relay, or evaluation points. In a manner similar to that of the railroad systems, there are feeders that extend from trunk circuits and reach to all sections of the country. These circuits, generally, as far as physically possible, are arranged to serve territory of kindred interests. Economic features of the transmission facilities, however, govern.

A news circuit is a telegraphic line through a number of cities and states, with from ten to thirty newspapers on the loop, all of which copy the news items sent on the circuit. One point, designated the filing point, controls the circuit and accepts news items from all individual points on the circuit. Each end of the circuit, except the tag end of minor circuits, is a relay point at which an editor re-evaluates the accumulating news. That which survives for transmission onward must have value to the news circuit. All items are transmitted as complete and ready to be printed without change.

The major news relay points of the trunk line circuits are New York, Washington, Chicago, Kansas City, St. Louis, Denver, Atlanta and San Francisco. These are gateways at which every item must stop for relay in seconds, minutes, or hours, or for the wastebasket, depending upon the accumulation of news at that particular relay. As an example, an Army news item, worthy of dissemination throughout the nation under ordinary news conditions, may reach the Kansas City relay at the time of a big middle-western blizzard, a big crime story, disaster, or some similar news development in the western section of the country. The accumulation of news on that particular event, together with other national news, may be such that the value of the Army news item by comparison becomes too low to get it a place on the wires beyond Kansas City.

There is always vastly more news on hand than facilities permit transmitting. Transmitting facilities, however, are limited only by the amount of news that the newspapers desire. Newspapers with the large press association service re-

cates are: the Newspaper Enterprise Association, headquarters at 1200 West

The six newsreels are Fox, International, Kinograms, M.G.M.

ceive daily many times the amount of news they publish. Hence, news items exist in a highly competitive state and the telegraph editors of all newspapers have extremely large wastebaskets, most of them about 50-gallon capacity.

The remarkable advances that science has made in communication facilities is in evidence in the offices of these press associations in the shape of high-speed telegraphic printers. These printer circuits are so set up that the whole nation, some 1,200 newspaper offices, can be hooked into one wire circuit, and one man punching a high-speed transmitter typewriter in Madison Square Garden, New York, for instance, is punching by telegraph 1,200 typewriters in all sections of the country. The instant that he records the blow by blow story of a championship fight the telegraph editors in these 1,200 newspapers, some of them more than 3,000 miles away, are getting it word by word. In such hooked up circuits for special events the major relay points are bridged over in the formation of the single circuit, and no delay ensues from re-evaluation.

The ordinary delay, however, on the normal relay circuits is remarkably small. The trained news editors, ever alert, instantly pass upon the news, and major items traverse the continent through all relays in a matter of minutes. There is perhaps no occupation that keeps individuals on the alert continuously as does press association editorship.

Another large classification in news collection and distribution is that which embraces the mail news syndicates. A large volume of material printed in newspapers, particularly the smaller newspapers and in the feature sections of the larger newspapers, is received through the mail. The sources of this mail news include the mailing feature services of the three major press associations, the news syndicates, and the newspaper unions.

Physically, this news material is dispatched by these mailing news agencies in one or more of three forms:

First—printed or mimeographed copy with photographs, for reproduction by newspapers in the same manner as wire or local news.

Second—matrices, which are furnished to newspapers that have facilities for pouring type metal but not for zinc reproduction work.

Third—material in metal form, which is used largely by the smaller papers, such as weeklies or country papers that have limited facilities and do not have a stereotype department. This third class of material is called "boilerplate," since it is in metal ready to print. It is usually in a form for use on flatbed presses.

The agencies that distribute this news by mail range from large national syndicates with nationwide distribution to smaller syndicates limited to state or sectional distribution.

A further classification may be made of the nature of the material that these syndicates handle. Some deal in straight news and general features, supplementing a wire news service. Some handle only feature news of a general nature. Other classifications include sports, editorial paragraphs, literary, political, financial, and comic features.

The territory of distribution is the determining factor in evaluating these agencies, so it is advisable to ascertain from local newspaper contacts any information desired as to the mail news distribution agencies in a particular locality.

Examples of these agencies or syndi-

cates are: the Newspaper Enterprise Association, headquarters at 1200 West Third Street, Cleveland, Ohio, reaches into all sections of the country, has representatives at many points, handles news, comics, and miscellaneous subjects; the Central Press Association, headquarters in Central Press Building, Cleveland, Ohio, likewise a nationwide agency distributing material, matrices, picture layouts, and editorials; the Western Newspaper Union, headquarters at 210 South Des Plaines Street, Chicago, disseminates fiction, farm, home, and miscellaneous news by matrix and boiler plate, reaches 3,778 newspapers divided into thirty-three lists by territory.

Material for all such syndicates usually must be furnished from ten days to a month prior to publication so that it may be made up and distributed to the newspaper clientele sufficiently in advance.

The third classification is the news camera. This includes the newsreels and the news photo services known as still syndicates. Newsreels are generally familiar, but mainly through the experience of seeing the results of their activities on the silver sheet. A newsreel is a news service subscribed to by theaters, schools, churches, and other institutions that give public exhibitions.

The six newsreels are Fox, International, Kinograms, M.G.M., Paramount, and Pathé. They are exhibited each week to 40,000,000 people in the United States and its territorial possessions, exclusive of those reached through the foreign exchanges. These newsreels are operated just like news-gathering organizations, the press associations. They maintain large numbers of camera reporters who send their news films to the executive and editorial offices in New York, where the silver sheet or motion picture newspaper is made up.

Two agencies are operating with the spoken movies in news work, the Fox Movietone and the Vitaphone.

The still syndicates, news photo services, operate in the same manner as the mail syndicates.

Within all these agencies the most interesting, and, in fact, amazing thing is the incredible speed at which they work. The effects of their work, the resultant production of news in printed or radioed word and in picture have a more continuous and a more effective contact with men and women of the world than perhaps any other single influence.

A comprehensive visualization of the extensiveness of this news network afford a striking impression of how Public Opinion has its foundation upon news, and is largely controlled by the trend of news.

Infantry First!

From the Notebook of "General Experience"

THE oldest regiment in the service is the 182d Infantry, Massachusetts National Guard, organized in 1636.

The oldest regular regiment is the 3d Infantry, now stationed at Fort Snelling.

lance would call for me some time as I arrived, a couple of men came in

Reminiscences of a Doughboy Soldier of '98[1]

Lewis L. McKimmey, (formerly) Pvt., Co. F, 4th Infantry

I RELINQUISH MY RANK

THE REMAINING days spent with division headquarters were not passed in routine work and in observation. I had reached the breaking point and began to get sick.

Rumors of an armistice were being circulated, and finally the firing ended. The stories of the sinking of the Spanish fleet were confirmed later on, and on the morning of the fourth all regimental bands were paraded and the day was celebrated joyously. The creek was full of happy men getting rid of the dirt accumulated, some of it from the transports; warm dinners were being cooked, and things were generally satisfactory. It was in the forenoon that I met up with a colored man, who had established himself at our headquarters and set up a cooking outfit. This interested me greatly; so, being generally responsible for things, I asked him who he was and what he was doing? He told me that he was cook for Colonel Wagner and was engaged in preparing dinner for him. I told him that he was going to have a guest, and it did not surprise him a bit, as he was expecting me, having been informed by the colonel that I was to be given all I could eat—pork and beans, boiled, with some *real* coffee. Was it a feast? I shall never forget the colonel, even if I should forget his teachings. It was about this time that a commissary (?) was established at brigade headquarters, and there was some soup to be had, if you could get it. I tried and was not successful. I was beginning to feel badly and grew worse as time passed. Finally, I asked to be relieved and returned to the company for duty. I had been away ever since we struck Tampa, and thought there might be improved conditions there. I later on found this to be a dream. Provided I could get another man acceptable to take my place, I would be relieved. I tried several soldiers and finally found one, who accepted the roseate conditions as I painted them, who would take the job. I was relieved and rejoined the company, and, instead of getting better conditions, got worse. I was no longer a brevet lance corporal!

JUST HAPPENINGS

When I rejoined the company it had moved to a position on the ridge north of the city and was engaged in digging trenches and building bomb-proofs, using such implements as were available for the purpose, but mostly the little old knife, fork, and spoon issued in those days by the Ordnance Department. I spent a day or two at this most necessary work, dividing my time between digging and carrying some wonderfully heavy logs. It was hard work, and I was not feeling up to it. I asked to be excused.

The next morning I reported to a doctor in the 71st New York, who laughed and told me to get my traps and go way back and down the hill, where an ambu-

[1] Third and last part. The first and second parts appeared in the July and August numbers.

I expect that I used up a hat full of blanket, an excavation was made, and

lance would call for me some time during the day; I had measles. I spent most of that day waiting for the ambulance and trying to be comfortable. About nightfall, an escort wagon came along and picked me up and deposited me in what was popularly supposed to be a hospital. It was near where the troops had encamped previous to starting for El Caney. I was told to put up my tent with another man, from the 2d Massachusetts, and we turned in together. I was hungry, having had nothing to eat since morning, and went to look for some chow. There was some in evidence, but how to get it was the question; they would give none away. I managed to rustle some and so allayed the pangs of hunger, temporarily.

When I rolled out of bed next morning, my partner in the tent was missing; inquiry developed the fact that he had been sent to Siboney and was supposed to have yellow fever. I spent that day in the hospital, in search of something to eat, without medicine, and without seeing a doctor.

That night it rained, and I was thoroughly soaked. The next morning I ran across a doctor and asked to be sent back to the company, as I was not sick, but feeling fine. I was informed that I would be returned when they got good and ready. The prospect was not cheering, so, watching my chance, I gathered up some equipment and pulled out. I had about a 7-mile trip to make, and it rained again in the afternoon while I was on the way. It was almost dark when I finally found the company, which had been moved from where I left it to a place east of the city, and well over on the right of the line. There was a truce on, waiting for the surrender of the city, and there was supposed to be no intermingling between our men and those of the enemy. Yet, as I arrived, a couple of men came in carrying half a calf that they, with the assistance of the Spanish soldiers, had captured, killed, and divided. I fell heir to a small part of this fresh meat, boiled it, and made some soup. The few remaining bones were given another boiling in the morning, resulting in more soup, not so good.

WAITING FOR EMBARKATION

On the morning of July 20 I went with the detail to the transport. Having had but little variety in the eating line, we were anxious to get something in the way of a change. This was accomplished by looting some of the mess-chests left behind by the officers, and a generous meal, mostly of canned goods, was had. This dinner was cooked by members of the 25th Infantry, who were on the boat for the same purpose. Maybe it was a form of retribution, but that meal caused me more anguish, mental and bodily, than anything either before or since. I woke up about 2:00 a. m. feeling mighty uncomfortable in the midregions, and this feeling was to stay with me for some time, although I did not then know it; I was unfit for further work.

After looking around, viewing the great pile of goods stored on the dock for use of the Red Cross (but unattainable to the American soldier) and eating a warm dinner, every crumb of which, as it disappeared, was hungrily watched by a horde of children and some grown-ups, I was sent back to the company.

Shortly after this I went on sick report and stayed there the rest of the time while in Cuba. I would report at sick-call and be issued a handful of camphor and opium pills and some bismuth powders. The instructions given were, "To take some now, some after a while, and some more shortly after."

the movement would soon start. It was on August 13 that the 4th Infantry was

experienced. It was good to be back in a country that God made

I expect that I used up a hat full of these. By this time I was getting thin; I could span my arm at the biceps with my thumb and index finger; my eyes were a finger's width back in my head, and my clothing hung on me like sacks. I was a yellow as a lemon, and gradually getting weaker as time passed.

Our water supply at this stage was not of the best. It was gathered in the following manner: each soldier would secure as large a piece of bamboo as was possible, knock out the joints except the bottom one, and use this as a carrier in lieu of a bucket. In the afternoons when it would rain, each man took his carrier over to a small ravine, where the water came rushing down off the hill, and filled it. This was slung over the shoulder and carried to camp, set on end until it settled, and then used.

It was about this time the *Mississippi* arrived in harbor with fresh beef. The only share of this I was able to get tasted good, and was relished greatly. As this meat came to us with only about a half hour's exposure to the sun, it was still quite edible, and as far as I was concerned, the embalmed beef never existed.

We had also been issued some of the new khaki uniforms, and had been paid. Had health conditions been better we could have enjoyed the situation.

The 2d Massachusetts was a short distance away, on much lower ground. There men were worse off than we were, although in my company there were only four men for duty. Numbers died in this volunteer regiment, and throughout the brigade so many were passing away that the ceremony of blowing taps and firing a volley was dispensed with. Fortunately, my own regiment lost only one man from sickness while in this unsanitary camp. He was placed in his blanket, an excavation was made, and the remains were placed therein, while on an old stub of a tree near by several buzzards were watching operations.

Up to July 4 the little army had been going fine, traveling on its nerve, and being fed on excitement. The fighting over, there was a relaxing of the nervous system, and the men began to break. The food provided, while it was plentiful, was not the kind that would tempt a sick person. The continual eating of grease had begun to pall, and there was a general longing for a change. Even the so-called hospitals could not provide proper diet for the sick. It was eat bacon, canned roast beef, or corned beef, or go hungry. Had it been necessary to continue the fighting without interruption, I believe the men would have held out on nerve alone. Their occupation gone, their resistance went with it, and when this was no more the hospitals were filled with men in all degrees of sickness.

The medical department functioned as well as it could under the circumstances. They had been sent out in a state of unpreparedness equal to that of any other department. They had but few of the common, ordinary drugs, and nothing for tropical diseases. The facilities for handling the sick and wounded were of the simplest, and sometimes crude. The rainy season being at hand was a great handicap, yet, under these very adverse conditions, the doctors were most devoted and industrious. Any blunders made on their part were made in Washington, and not by those in Cuba.

THE SENECA

Rumors had been in circulation for several days that the troops were going to be returned to the States, and that

called up a rather tough-looking citizen and told him to get busy and rustle a

request and could not even do that. I was broke

the movement would soon start. It was on August 13 that the 4th Infantry was ordered to go aboard the *Seneca*, and return home. The orders specified to leave everything behind except clothing and equipment, such as arms and mess utensils. At 7:00 a. m. another soldier and myself started for the boat, in advance of the regiment, thinking we could make it before the boat sailed. We carried nothing except a stick, using it as a staff to help us along. We were only about 1½ miles from the boat, and we reached it, after five hours of constant travel, at 12:30 p. m. The tide was out, and the stench which came from the bay was something to remember. The regiment was placed aboard in a somewhat crowded condition, little preference being given to the sick; and all were huddled on the freight deck, just above the hold. I was somewhat in luck this time and had secured the exclusive use of a small after-deck in the stern, immediately over the propeller, and on the outside, but roofed over. To eat, it was necessary to enter into the ship where the men were, and when there, it had to be rustled. I subsisted mainly on canned roast beef, condensed milk, and hard bread. The sanitary facilities on that boat should go down in history, and the man responsible for such conditions should forever after have been compelled to use them. There must have been a real bunch of men aboard, as no one died on the homeward trip. In some way they managed to get by. The boat arrived at Montauk Point, L. I., on August 22, and after being held up a day to allow the 2d Massachusetts to land, my regiment went ashore. Those green hills, the bracing air, and the American flag flying are the three finest things I have ever experienced. It was good to be back in a country that God made.

MONTAUK POINT

It was the following Friday evening when I managed to break into the hospital. They had come to the conclusion that I was really sick, so they sent me over, and I reported at a ward that was "manned" by some Sisters. My temperature was taken, the nature of my sickness inquired into, and I was placed on a cot with instructions to eat nothing except what was given me. I got up in the morning feeling that, if there was anything to eat, I wanted it. I slipped out of the ward (not a hard job) and discovered a bread line, where I was informed there was everything one wanted at the other end, and all one had to do was to grab a plate and get in line. I grabbed, and I ate, after which I returned to the ward, and when the Sisters came around with a little milk, somehow, I was not hungry. Later on, the doctor came in, made out my record, and left. I saw him the next morning and asked for a sick furlough. He had no idea who I was, but he put in for the furlough just the same. That night I was off, and arrived in New York at midnight, still a long way from home, and with no place to stay.

IN NEW YORK

Never having been in New York before, I had no idea where to go; so, seeing an open saloon across the street, I went there. This was a "riverside" saloon and the appearances were not of the best, yet I could have dropped into no place where I would have been better received. The bartender recognized me as a soldier, and asked if I were a Rough Rider. When I informed him that I was not, it made no difference, and after telling him my wants, he

simply because they were required as a part of the uniform. I was wearing this

through the streets to the same old tune that we had marched to many times be-

called up a rather tough-looking citizen and told him to get busy and rustle a good and decent bed, in a decent place. Neither the accommodations nor the bed cost me a cent. They refused to take any money. I slept (?) to the music of the elevated until daylight, when I turned out for a meal and then made my way, by inquiry, to Whitehall Street, where I secured transportation to my home town. I went into a drug store, run by an old German, and told him my troubles, and asked him if he had anything that would relieve a sick soldier. He gave me an 8-ounce bottle of medicine and instructed me how to take it. It seemed to have an immediate effect, and continued to have, as long as it lasted, which was long enough. It being Sunday, I decided to look up the train that was to carry me away, and found it in Weehawken. The trip to Buffalo was uneventful, except that I occupied a sleeper, and was an object of much solicitude on the part of some the passengers—old ladies, especially. This sleeper was to carry me to Chicago, where I was to change. Getting out at Buffalo to get some breakfast, the sleeper went on without me, and from then on I rode local and in the smoker; yet I got through.

CHICAGO

Having arrived in Chicago and salvaged what few things I had, I went over to the Wells Street station and boarded a train for Fort Sheridan where I had some new clothing waiting for me. I was one of the first to return, and was quite an event. The 1st Illinois Cavalry was being turned loose and quite some crowd had gathered, with lunch baskets well filled. I got my clothing, some of the lunch, and returned to Chicago, and in the evening started west. Not being able to get a sleeper, I tried to sell my request and could not even do that. I was broke.

AT HOME

I arrived on Monday morning, September 1, at the old home town. My coming was entirely unexpected, and no other hero (?) had as yet appeared upon the scene. There was one youngster who had reached Manila with the 1st Nebraska, and who had been homesick and bought out, or got out in some way. His was an old story by this time, and I was (or would have been) in great demand had I been able to tarry in their midst. As it was, a conveyance was provided for me, and I went out to the farm where my mother lived. I had not written them since I was in Tampa, along in May, and they had no idea as to my whereabouts, and when I came through the gate they were somewhat surprised, but apparently glad to see me. Here I continued using the medicine I had secured in New York, and in addition started drinking fresh milk, warm from the cow, at the rate of 2 quarts a day. My recovery was rapid; it was not long until I was eating everything, and it soon got to be difficult to get enough. I came home a skeleton (for me) weighing only 125 pounds, my normal weight being 185. At the end of three weeks, I had attained to the greatest weight I have ever had, 205 pounds. Although I had a month's furlough, and this still had a week to go, and it could have been extended if I had asked for it, I was anxious to get back and see the men of the company, who had returned by this time; so I pulled out to Fort Crook, Nebraska, and reported for transportation. Now in those days we had uniforms that fitted, and *were* uniforms. The one I had secured at Sheridan had been made to lace up the front, the buttons being there not for use, but

Replacements and Hospitalization and

simply because they were required as a part of the uniform. I was wearing this uniform when I reported; the strain on it was great, and while I was reporting to the Adjutant the lacing gave way, as well as the buttons. I returned to Fort Sheridan on September 23 and found many of the company absent, only the stronger ones being present, and the rest away and sick in hospitals.

THE WAR IS OVER

Having returned to the place of starting, completed the circle and returned, the usual routine started in as is the custom. We were heroes for a time, but finally settled down, and the public began gradually to forget, as is its custom. Still, we had one more day of glory coming to us; this was the day of the peace parade in Chicago, when the President would be there to look us over.

On the morning of October 18, we again boarded the train, and this time we were headed for Chicago, where we received the welcome denied us some months before. Our colonel, the same one (he had been one of the first to be returned to his grade), was to lead us through the streets to the same old tune that we had marched to many times before. We arrived in the city and went out to the armory of the 1st Illinois (themselves veterans of the war), from which place the parade started. After some discussion as to who should lead the parade (there never had been any doubt in our minds who would) we started down Michigan Avenue in the lead, and on past the reviewing stand where the President and other notables were waiting to see us pass. As I was left guide of a platoon, I was necessarily near the sidewalks, where the crowd was thickest. In passing a bunch of colored folks, a wench noted that I was in rather better condition than the rest, and as I passed her she bawled out, "My! But you'se a fat baby; you all's never been to Cubey."

As fine a bunch of men as was ever assembled had been scattered over the country, and the Army of Cuba was no more.

The war is over—I wear no medals, never fired a shot, and still think there are times when a cat should be a part of a soldier's equipment.

Respectfully Referred to the Compilers of "American Military Dictionary"

From the Notebook of "General Experience"

THE Howitzer Company, 29th Infantry, is equipped with six 75-mm. mortars, and is the only Infantry unit with these weapons. Incidentally, why the term "mortar"? Is it a legacy from the "trench-mortar" of the World War? The length of barrel would indicate that howitzer is the correct designation.

Replacements and Hospitalization and Their Relation to Losses in War

MAJOR ALBERT P. CLARK, General Staff (M.C.)[1]

Major Clark has spent a great deal of time on the study of a phase of command and staff work about which most of us have insufficient knowledge. In this paper, which will appear in three parts, he presents the results of his work.

The Chief of Staff of the Army has the following to say of the study:

"In war, maintenance of organizations at effective strength constitutes one of the most serious problems facing the War Department and commanders in the field.

* * * * * * *

"One of the most prolific and valuable sources of replacement is that of the sick and injured returned to duty from hospitals. Any system of replacement must take this source into consideration. The replacement system, therefore, that recognizes all possible factors of resistance and prescribes the methods that will utilize to the maximum this source, and which predicts in advance the size of this resource, is of untold benefit in making proper provision in plans for war.

"The principles involved and the methods employed as advanced in this article, prepared by Major A. P. Clark, are a long step in advance in the solution of the important co-related problems of replacements and hospitalization and their relation to losses in war. It is a General Staff contribution to the function of mobilization planning."—EDITOR.

PART I

OUR country has been engaged in two major wars during its history. In both of these, the requirements in replacements and hospitalization for personnel were so great as to constitute real problems. In neither case did we have plans in advance for the solution of these problems, and in both cases the solutions improvised were at best only partial successes. In the past we had never developed a basis for these requirements, and, as a result, plans for their solution could not be laid. Lacking plans, improvisation was our only recourse. We have every reason to believe that in any future effort, of proportions even similar to the Civil War or the World War, these requirements again will be so immense that equally careful planning will be required in advance as for any other demands which we can now visualize.

Looking back upon the American effort in the World War, we see that more than 175,000 replacements were obtained in France by breaking up eleven infantry divisions which were organized for other purposes. Even with this resource, replacements were never adequate. As to beds, history will say that there were enough, because a so-called crisis capacity was never fully used. Had the war gone on into 1919, we would have had our difficulties in or-

[1] By arrangement between the author and the editors, this article appears concurrently in *The Military Surgeon* and THE INFANTRY JOURNAL.

ganizing bed space fast enough to keep pace with the demand. Certainly, the number required would have exceeded the 10 per cent occupied at the Armistice.

Stated briefly, the mission of the Medical Department is to assist in maintaining the effective strength of the command; that is also the mission of the replacement system. The Medical Department is a link in the replacement system. In fact, the Medical Department is the most important link because that Service supplies more and better replacements in its discharges from hospitals of old and tried men than does the replacement system proper with its new and untried men. There is nothing new in this statement of relationship. But what we have not done in the past is to tie these two agencies together in their basis for requirements.

Logical reasoning brings us to the conclusion that contact between a military force and the opposing resistance results in losses, and that losses on the one hand fill hospital beds and, on the other hand, require new replacements to fill the gaps in the ranks. In other words, the loss factors apply equally in their own spheres to bed and replacement requirements. Furthermore, when the cycle of return of cases to duty is established, this new source of replacements, which eventually becomes the chief course, is a most important part of the basis for the new replacement requirements. As discharges increase and beds are emptied, new replacements are decreased in direct proportion. It is apparent, therefore, that this factor of returns to duty, *if it can be developed*, has a most important bearing upon both bed and new replacement requirements. It may be readily seen that, as the occupied bed project assumes real proportions, the daily discharges in turn become a larger and larger total of trained men returning to the line—a total including a large proportion of men who have been tried in actual battle.

A few simple principles are involved in the study of requirements in fixed hospitalization and replacements. These will be stated below. It will be noticed that only those cases which enter fixed hospitals are considered in the basic factors later discussed, for reasons stated. While the principles involved are stated separately for hospitalization and replacements, the reader should note their close relationship.

Cases entering fixed or treatment hospitals, like general and station hospitals, readily fall into two major groups: first, those cases which are of such long duration as to be more or less permanent. We call these "accumulators." Any case which occupies a fixed bed for a period of months is liable never to return to full duty in its original line of work. This group is by long odds the smaller of the two. The second category includes all other cases, and it will be assumed that these will all return to duty within a stated period. Obviously, the accumulators force our hospital bed project to increase indefinitely prior to retrenchment even after the strength of our forces has stabilized. This group, furthermore, furnishes no replacements except to a very minor degree.

The second group, which we call the "returnables," is the group from which the replacements are furnished as the discharged cases rejoin units. This group is subject to a discharge rate which may be consolidated for purposes of simplicity to agree with their maximum stay in hospital. This means, for

example, that if the group includes those whose stay in hospital is not longer than say seventy-five days, the rate of discharge for the entire group will be consolidated to a rate of 1/75 of those entering per day, instead of breaking it up by so many in one month, so many in two months, etc. It is unfortunate that better statistical data do not exist upon which to base this factor, but to date they have not been compiled. When such data become available this return factor may become a greater or lesser one, or may even take an entirely different form. At present the one adopted is the best the writer could develop from the information at hand. Obviously, this group, because of its being all "returnable," becomes the factor which precludes the hospital project from absorbing the entire force in a short time. The two groups discussed will include cases originating in both the theater of operations and the zone of the interior, but, of course, the rates for each will differ. Obviously, the mass of cases will come from the battle zone, whereas, for apparent reasons, the majority of all cases must be hospitalized in the zone of the interior.

Consideration is given to cases which die in hospital as a factor in the permanent loss rate discussed under the replacement phase. Cases admitted and returning to duty within the mobile or evacuation echelon are eliminated in advance of any estimate on treatment beds. In the first place, the mobile units are fixed in tables of organization—so many evacuation hospitals per army or general headquarters reserve, for example, and there is, therefore, no flexibility in the matter of the organizations involved. Secondly, those cases remaining but a short time have a rapid turn-over and are not evacuated to treatment hospitals, but return to organizations within the forward echelons. As a result, they do not figure in our hospital requirements basis. Their influence upon the replacement demand, which is a real one, will be covered at the proper time. Other losses such as killed, captured, missing, etc., are also handled with the replacement phase.

In all wars losses are suffered, replacements are required, and sick and wounded are present, and, strangely enough, while the numbers involved vary, the variation is within narrow limits. This is particularly true when we have a long major war and view the problem in its entirety; for a given battle or front, and within a part of the duration in time, we naturally expect wider variations. We entered the World War with a vast but totally undeveloped background of what these variations were. The Civil War, the Russo-Japanese War, and the experience of the Allies before our entry were before us. While none of the statistics were available in just the form needed, and major differences existed in these several precedents, much valuable data could have been gleaned from them had we looked upon the problem from that point of view. The use of the word "we" does not mean the Medical Department. It means the agencies of command, and since we had such a body it means the General Staff as an agency of command. It is apparent that the problem is a combined one and is not the responsibility of the Medical Department alone, which can only compile certain data, and this in such form as may be required by these agencies.

Lacking any real knowledge of hospital bed requirements in 1917 and 1918, the agencies of command at our G. H. Q. in France were forced to improvise and

turned to the Medical Department for a basis, which placed that Service in the improper position of estimating what the future held in store for the forces in France in the matter of losses. After many conferences, G. H. Q. approved a figure for a flat bed percentage of 15 per cent against the strength in France. The Medical Department was satisfied, but believed the figure low; the agencies of command were satisfied, but felt that the figure was rather high; both were right or wrong, depending upon the time in question, and, as we see it now, neither should have been satisfied. All of this, however, is looking at it *after* the happenings; at that time it could only be viewed in its true bearing on the existing situation—the most constructive step taken in this line since we entered the war in 1917.

This authorization came late in the war. If 15 per cent of beds had been authorized for the winter of 1917-18 and had been available, there would have been no way to justify such numbers, for fully two-thirds would have been empty; to this extent the Medical Department was wrong in thinking the figure low and the General Staff right in believing it high. But there is no question, in any fair mind that has considered it, that 15 per cent would have been insufficient for the spring and summer of 1919 had the war gone on; to this extent the Medical Department was right and the General Staff wrong, and this, nothwithstanding the fact that 15 per cent of beds were never provided, never actually occupied, and never really needed in France at any time during the war. The conclusions generally drawn from the facts, however, appear to be most unfortunate as well as erroneous.

Since the World War and prior to the development of the present method, the Medical Department has always contended that this 15 per cent was satisfactory for the future. It may be adequate, depending upon how long the war lasts, as a top figure only, although it is certainly unsound to depend upon it to be right; but what is of equal importance, it is certain to be wrong in the beginning on the very face of it, and were it approved, a useless allocation of resources would result at the very time when their conservation was most needed. The General Staff, on the other hand, has always opposed any such basis on the premise that it was too high since it was never needed in France, but the General Staff has not until recently known to what extent these contentions could be supported, nor has it known until recently that ultimately 15 per cent is in reality too low rather than too high.

We have now an approved method of estimating requirements which has the advantage of freeing the Medical Department from the necessity of defending its figures, since the basis originates where it should originate—in the agencies of command. This method remains the same for any plan, and only the factors and rates change from one plan to another. All argument, therefore, centers on the smaller detail of rates, and when these are settled to the satisfaction of interested General Staff Divisions, the Medical Department, like other agencies involved, has a clear-cut function and can proceed in the accomplishment of its legitimate mission under an approved directive with the feeling that the resulting estimate will be received with confidence and treated accordingly.

It is the desire now to consider the question of replacements. The follow-

ing principles are basic to any solution of the replacement problem as it is visualized under the present approved method:

All losses, both permanent and temporary, must be replaced early if the efficiency of organizations is to be maintained.

Hospital discharges from mobile hospitals are available as replacements within a short time after admission because, first, they are evacuated but a short distance and, second, their stay in hospital is but a temporary one.

Hospital discharges from treatment hospitals are available only after greater lapses of time, but the numbers becoming available increase with the increase in occupied beds.

Just as hospital beds must be echeloned laterally and in depth so must replacement units be so echeloned, but in the case of replacements (like stock in a depot) this results in a "freezing of this stock," which in itself is an additional requirement, whereas in bed echelonment there is required but a slight "overhead" as an additional requirement.

The above conditions demand that there be available early a sizable pool of new replacements to fill the immediate demands caused by, first, total actual losses; second, echelonment; and, third, the various classes of personnel (by branch and grade) which must be issued to replace the actual losses.

Eventually in a long major effort hospitals will have supplied more replacements than were supplied from personnel originally trained as replacements, and estimates must be built accordingly.

The above principles, when applied to a combatant unit like an infantry division, mean that such a unit will need its greatest number of new men immediately after its first major battle and with each subsequent engagement—a lesser number of new men will be required, as its old men return from hospital; eventually new men called to maintain this organization at strength need be but slightly above the numbers of the permanent loss from this unit.

As in the case of the medical requirements basis, we entered the World War with the full knowledge that our replacement system in the Civil War had been a complete failure if we eliminate such notable exceptions as the Wisconsin Brigade. In the World War, we placed twenty-nine combat divisions in the line, but we broke up eleven other divisions to maintain their effective strength. In other words, we spread our strength over too many units instead of withholding sufficient to support those available before organizing new ones. Here again the difficulty lay in our lack of a basis of requirements, and this came about through our failure to use properly the experiences of the past.

One of the earliest plans laid by our G. H. Q. in France was for a replacement system. While no attempt will be made to analyze in detail the difficulties encountered with replacements in the A. E. F., those in which a real lesson is contained will be considered. At the outset, it must be realized that the plan adopted had not the slightest real relationship to the hospitalization project; it could not have had, of course, because no such project existed. G. H. Q. was struggling with both problems at once in an attempt to find a separate basis for each. As a matter of fact, the losses to be anticipated should have been looked upon as the basis for both.

In France we were constantly forming new organizations, the need of which could not have been foreseen. This absorbed masses of casual personnel which might otherwise have become available as a pool. Also, organizations came to the A. E. F. in most cases under strength, or their authorized strength

was increased after arrival, which amounted to the same thing. In general, it appears that losses to be expected in an organization prior to its entering battle had been given almost no thought, and yet this proved to be an element of real moment. Finally, it was apparently not realized that if a unit—a division, for example—is to be kept up to standard in morale and fighting efficiency, its total losses during a given battle must be replaced immediately upon withdrawal from the line. It was fortunate that losses by capture and absenteeism were negligible factors for our forces in France. If these elements had even approached the experience of the Civil War, we would have been faced then with a situation which may be assumed as more nearly paralleling what is to be expected in a future effort on this continent.

In 1917 and 1918, it was not a question of having the correct basis or a scientific one, but of having *any* basis that was reasonably satisfactory. Improvisation and compromise were the order of the day. Neither problem having been given serious study prior to the World War, it was necessary to meet the situations as they arose. It was with this background that we returned in 1919 and took up the work of preparing for the future. During the next two years the basic organization of the Medical Service for our forces in war was laid out. In so far as this was quantitative for fixed hospitals, it was based *upon what we had done in France*. At the same time, other groups were studying the replacement experience of the war and were arriving at conclusions which were supposed to be fundamentally correct.

These studies gradually became basic to instruction in this line at our military schools. In general terms the replacement rates adopted for personnel were 3 per cent per month for the forces involved, together with a pool of 15 per cent, both to be applied indefinitely; and the hospital rate was as previously described—beds were to be provided for 15 per cent of the strength in the theater of operations. In the zone of the interior, a replacement rate of 0.75 per cent per month was considered, and beds were to be provided for 7.5 per cent of the command. The replacement rates adopted were supposed to be the result of our experience in France as regards losses and replacements required. The 15 per cent hospitalization was obviously in no way linked up to either replacements or losses. It was just an arbitrary acceptance of a compromise figure which had been approved late in the war.

In 1922, the writer, while an instructor at the Army War College, presented his first ideas with reference to an adopted resistance being the basis for requirements in hospitalization. Two ideas regarding hospitalization were presented in these lectures: first, that of the local and general resistance adopted for the force and, second, that the resistance multiplied by the strength would equal admissions to hospital, and these multiplied by their average stay would equal beds required. The last part of the second idea was entirely erroneous, but it was the best that could be presented at the time. The first idea is embodied as a basic premise in the method now being described and is presented below as it appeared in the original conception:

TABLE 1.—*Measure of Resistance—General*
(Cases to be *handled daily*—killed eliminated)

Resistance	*Conditions—fixed**	*Losses*
Class A	Great resistance	.75%
Class B	Moderate resistance	.50%
Class C	Average resistance	.35%
Class D	Light resistance	.25%
Class E	Daily casual sick	.15%

*Fixed because of large size of force and tendency of conditions to average.

When this table of resistances was presented at the Army War College, the theory of the development of a given resistance for a given plan was explained by using another table in which the total resistance had been broken down into its several elements. There was also shown a list of special situations which had been given particular attention in connection with the one under consideration, in order to have as nearly as possible a background that was parallel to the situation being estimated. Class C, or average resistance (0.35 per cent), was taken as the example. The list and table are given below:

A Given Situation *Background for the Resistance*	The Same Situation *Method of arriving at Resistance following use of Appropriate Background*	
		per cent
1. Cuban Pacification	1. Peace resistance (basic)	0.18
2. Sherman's March to the Sea.	2. Combat factor	0.10
3. Soudan — The River War.	3. Epidemic factor	0.03
4. Epidemiological study of the country.	4. Accident factor	0.02
5. General study of the country.	5. Climate factor	0.01
	6. Terrain factor	0.01
	Admission rate per day	0.35

The main idea behind this demonstration was to show that every plan should be considered separately, using such experience as is available in an attempt to arrive, at least in part, at the proper basis of admissions, and, therefore, beds and ultimately replacements.

The following idea, also presented at the Army War College in the lectures quoted above, was believed correct when it was written, but in the five years that have followed since this work was done it has been definitely proven wrong. The part in error is that average stay multiplied by number of cases equals beds, and that average stay determines rate of return to duty (see table, page 296). It is given here, however, because the right procedure is but one step removed from it and the writer feels that it was this improper method that led eventually to the correct solution of one phase of the problem to be developed later.

In January, 1925, the War Department General Mobilization Plan of 1924 was given close study of G-4 of the General Staff, then headed by Brig. Gen. Fox Conner. Among other comments made upon this plan by General Conner in May, 1925, the following appeared:

> One point is becoming more and more apparent as deserving further careful study. It is the relationship between losses and replacements and losses and hospital beds; all of the factors are closely linked and interdependent.
>
> First replacements are dependent upon total plus pool and distribution needs. Later replacements are required only slightly in excess of permanent losses, and the greatest bulk of replacements are furnished from men already in service—hospital discharges. So our great need is early from every point of view, and later the need is gradually reduced until it practically stabilizes upon replacing permanent losses.
>
> The demand for beds results from the exact same condition—battle losses and casual sick and wounded. Except for the set-back in procurement of these beds, the amount required early is least in actual figures as well as in ratio to strength, and the zone of the interior basis for this is well known and entirely independent of battle, although even here it can never stabilize because of the accumulation. Later, as the forces engage the enemy, the demand increases rapidly from every point of view and again never stabilizes at 15 per cent for the theater or any other per cent. It is conceivable, if the war were intensive and lasted long enough, that beds would reach the stupendous figure of 30 per cent or more.

The brief paragraphs above cover the outstanding principles which are basic

FIRST ARMY

3,000 *cases per day by train to treatment centers in the Theater of Operations and the Zone of the Interior*

20 per cent remain in T. of O.	= 600 $\frac{40}{\text{per day}}$	To Convalescent Camp = *Replacement*	
Average stay in hospital	= 15 days	1/15 of 600 = 40	*
Beds required	= 9,000	600 × 15 = 9,000	
80 per cent to centers in Z. of I.	= 2,400 $\frac{120}{\text{per day}}$	To Convalescent Camp = *Replacement*	
Average stay in hospital	= 20 days	1/20 of 2,400 = 120	*
Beds required	= 48,000	20 × 2,400 = 48,000	

to a solution of this problem. In June of 1925, General Conner went into greater detail on the replacement question, and the following are extracts from his comments at the time upon our past experience and plans for the future. These extracts are quoted here because of the significance of statements made in 1925, and because they are entirely borne out under the method being demonstrated in this text:

The experience of the World War is believed to indicate that a division (of our present type) can suffer a battle loss of 6,000 each month without losing its fighting qualities; *provided, however, that all its losses be promptly replaced.*

Immediately following the first battle the *whole* of this 6,000 to replace battle losses must be available in new individuals; the return of wounded cannot be expected at once.

Considering D as the first battle day, the following new individuals as battle replacements should be available if the typical division is to be kept at the highest pitch in fighting ability:

D	6,000
D+30	5,116
D+60	4,674
D+90	3,790
D+120	3,348
D+150	2,906
D+180	2,464
Total	28,298

and a constant flow of 2,464 thereafter.

It is particularly important to notice the *decreasing* requirements in *new* men as replacements. It may be assumed that losses will be less than those shown or that the typical division will not go into battle oftener than once in two or more months, but the law of constant decrease in replacement requirements always holds.

After considerable study of the subject by the General Staff, the Chief of Staff directed a re-study of the War Department General Mobilization Plan. A troop basis was prepared by G-3 and passed to G-4 for an estimate of the supply possibilities under the mobilization contemplated. This troop basis reached G-4 in February, 1927. It immediately became necessary for G-4 to propose several assumptions of a specific nature that would provide the estimating agencies with a concrete basis for requirements. These were all finally approved by the Chief of Staff.

A memorandum on the subject of hospitalization and replacements, approved as just stated, contained assumptions of chief interest in this study. Because of its length only the last paragraph is quoted:

6. In general, G-4 recommends:

(*a*) That the above method be adopted for all war planning and the above factors adopted for the specific purpose now in hand—revision of the War Department Mobilization Plan.

*Incorrect, see explanatory paragraph, page 295.

(*b*) That specific factors be adopted in case of each special plan when the case arises and then the approved factors be applied under the approved method to the approved strengths and situations presenting.

A memorandum covering animal factors was also written and approved. To save space, this also is not repeated here. It contained no new principles and merely advocated the same method for all plans and the adoption of factors to fit each plan being studied, and gave a group of factors for a general mobilization plan. In that part devoted to animals in this text, these factors have been used except where departures were dictated by better analysis of past experience or future expectations.

Reverting to the table of *general* resistance factors for personnel, as quoted from the lecture at the Army War College, it is noted that a factor of 0.35 per cent is listed as Class "C" or average resistance. A word in reference to this factor will serve to identify it with a rate that is in quite common usage. If we had desired to express this rate in terms of "per thousand per annum", which is the usual peace-time method, the figure used would have been 1,277.5. This is equivalent to saying the admission rate is 1,277.5 per 1,000 of strength for 365 days. Converted to per cent per day, this becomes

$$\frac{1277.5 \div 365}{10} = 0.35$$

The result is, therefore, the daily admission rate per 100 or the daily admission rate in percentage. This admission rate to fixed hospitals would, therefore, be 0.35 per cent per day of the force in question. The rate for admissions in the theater of operations adopted in this text is 0.32 per cent, a figure slightly lower than the one just demonstrated. It appears to be more in conformity with the total average rate for battle months in the A. E. F., but exceeds it, since the A. E. F. was after all equivalent in part to a zone of the interior problem even after June, 1918. The range of stay in the study here presented of cases entering hospitals is *1 to 75 days*, to conform again to our experience in France as near as this can be ascertained at present. The accumulator admission rate adopted here is 7 per cent; while there is no very clear-cut basis for this, what evidence is available appears to support it. The initial pool is set at 30 per cent of the theater of operations strength; no zone of the interior pool is considered. The expression "average stay in hospital" is no longer used, because *average* stay of cases has no significance. Range of stay of admissions is the determining factor; this is a development by the writer since he advanced the original idea at the Army War College in 1923.

It must now be clear to the reader that the essential element in this method of estimating replacements and hospitalization is the adoption *for any given plan of factors* that cover losses and that can be applied to both replacements and hospital beds required; that these factors will vary among plans, depending upon the conditions visualized; and that past experience must be carefully considered and given its proper weight when a plan is made and factors are adopted for any given future effort.

While, in the matter of losses, we have no complete analysis of past war experience, what exists can be placed together to make a fair fabric. It appears reasonably certain that the range of resistance to be estimated is not as wide as was at first believed. Class "A" general resistance, for example, as the

writer originally visualized it at the Army War College in 1922 for a large force, was based upon an admission rate of 0.75 per cent or more of the force per day. Considering the other factors that go with this, it is now seen that any force subjected to such a general resistance could not remain long in existence. This, however, does not completely discount the future; it merely places a reasonable evaluation upon experience of the past. In so far as it may be possible, we will now attempt to justify the more important factors adopted, even though it be thoroughly understood that these factors were adopted here more for the purpose of demonstrating method than as a predication of even a general mobilization plan, let alone any specific effort. Every effort has been made to base them upon proper evaluation of past experience with reasonable deviation therefrom to fit anticipated needs.

In the early part of 1924, the writer was convinced that the existing bases for replacements and hospitalization were unsound and that both functions could be tied together and estimates made upon a more scientific basis. It was evident that World War experience, both in the zone of the interior and theater of operations, should be used as a guide. Information received from the Surgeon General's office indicated that admissions to sick report in the United States included quarters cases and cases carded for record only; neither of these groups influenced losses, replacements, or beds, and this experience had to be discarded. The A. E. F. data were free from this complication and suited our needs very well. They covered so long a period (April, 1917, to December, 1919) that they were, in fact, a guide to zone of the interior experience as well as for the theater of operations, since only a few of those months were battle months and in only two of these months did the A. E. F. have really large forces engaged for considerable periods. This admission experience appears below in annual rates per thousand and in per cent per day:

1917	*Admissions in Europe per 1,000 per annum*	*Same in % per day*
July	636.40	.174
Aug.	520.66	.142
Sept.	481.47	.132
Oct.	618.47	.169
Nov.	913.81	.250
Dec.	1,107.53	.303
1918		
Jan.	1,274.50	.349
Feb.	918.20	.251
March	982.55	.269
Apr.	730.94	.200
May	749.83	.205
June	649.55	.178
July	738.53	.202
Aug.	618.12	.169
Sept.	939.17	.257
Oct.	1,430.66	.392
Nov.	744.84	.204
Dec.	636.39	.174

As previously stated, the A. E. F. from the loss point of view was a zone of the interior problem from July, 1917, to May, 1918, inclusive. The average annual admission rate per thousand for those eleven months was 812.21, which converted to a *daily rate in per cent* equals 0.22 per cent. It is recognized that the troops involved in this average were for the most part fairly well hardened, but the numbers in the A. E. F. during the months of December and January, when the rate was very high, averaged only about 150,000, and during these months health conditions were most unfavorable. Allowing for a 10 per cent improvement in our ability to prevent sickness in the future developed the figure adopted for this study, 0.20 per cent admissions per day to treatment hospitals in the zone of the interior. It is believed desirable, however, to study the experience in the United States during the World War in

order that this rate may be more definitely determined from actual zone of the interior experience; the rate used, however, as will be shown in later tables, results in about 90,000 beds being occupied for the zone of the interior strength alone, without counting any evacuations from the theater of operations to the zone of the interior, a figure more or less comparable to what actually happened in 1918 in the United States. Exclusive of very small hospitals at stations, we had in October, 1918, 114,000 cases in base and camp hospitals in the United States, of which the A. E. F. contribution had totaled around 20,000.

Reverting now to the A. E. F. rates given above for battle months, we find that the average rate for the six months of June to November inclusive was 853.48, a figure so totally misleading as to need no defense for its being discarded. Even the figures for the four most active battle months (July, September, October, November) were discarded because they appeared to be unsuitable as a real guide to the future. Except for the months of September and October, no really large proportion of our combat element was engaged more or less continuously against the enemy. The two months in question were assumed to be fairly good pictures of what the future may require. The rates for these two months and their conversion follows:

September.. 936.17
October 1430.66
2366.83

$$\frac{2366.83}{2} = 1183.41 \text{ average}$$

$$\frac{1183.41}{365} = 3.24 \text{ daily rate per thousand}$$

$$\frac{3.24}{10} = 0.324 \text{ daily rate in per cent}$$

The odd figure of 0.004 was dropped and 0.32 per cent was adopted. The idea in presenting these data is more to show method, and indicate that the figures are not just picked out of thin air. Right or wrong, that figure was adopted because it was the best experience factor available. While the writer feels that it is a very good figure for the purpose of demonstrating method and, in fact, for a general mobilization plan, it would simply deny the principle upon which the method is based to defend it for any other purpose. We leave this to those who are responsible for the factors required in any particular plan being considered in the future.

It is the desire now to consider briefly the zone of the interior and theater of operations range of stay in hospital of recovery cases, or as we call them in this study, "returnable" cases. The range of stay adopted for the theater of operations is 1 to 75 days. This range, it will be remembered, establishes the rate (1/75) of return of such cases to duty. These cases include in a theater of operations, the sick, the non-battle injury, and battle injury groups. The experience of the A. E. F. shows that the average admission rate per thousand per annum (July, 1917, to December, 1918, inclusive) due to disease was 653.04, due to non-battle injury 54.39, and due to battle injury 477.48. The non-battle injury element was estimated from best available data and the disease rate taken from the entire eighteen months' period just stated; the battle injury rate was assumed as the difference between the total (1,183.41) and the sum of the other two (707.43) or 475.98.

653.04 = disease
54.39 = injuries
475.98 = wounds

1183.41 Total rate and equal to 0.32 per cent per day.

A. E. F. experience also indicates that the *average* duration of stay in hospital and, therefore, the range is as follows for each group:

Group	*Rate*	*Days, Aver. Stay*	*Days, Range*
Disease	653.04	17.8	1— 35.6
Injury	54.39	22.7	1— 45.4
Wounds	475.98	78.1	1— 156.2
	1183.41		

If now we multiply the rates by the range, add the results and divide by the total rate the average range of stay should result.

$$\begin{aligned} 653.04 \times 35.6 &= 23{,}248.22 \\ 54.39 \times 45.4 &= 2{,}469.30 \\ 475.98 \times 156.2 &= 74{,}348.08 \\ & \quad 100{,}065.60 \end{aligned}$$

$$\frac{100{,}065.60}{1183.41} = 84.56 \text{ days}$$

The average range of stay under A. E. F. experience is, therefore, 1 to 84.56 days. We cannot expect to lower these admission rates in future, because these are obtained from a force in the theater of operations where the troops were hardened and well trained. We can, however, expect to improve in the treatment of all these groups, and this has always been the trend. Assuming a 10 per cent improvement, we have $84.56 - 8.46 = 76.10$. This figure was still believed to be too high because it included many long-time cases which under the new method are classified as accumulators. Removing the odd figure of 1.10 for this factor, there remains a range of stay in hospital for the theater of operations of 1 to 75 days. This element of 1.10 would have been removed any way for purposes of simplicity because, as it will develop, it is more convenient to have the upper figure of the range a multiple of 15, but this was not a determining element. Right or wrong, 75 was adopted, and the above indicates how it was obtained.

The zone of the interior range of stay in hospital was assumed to be 1 to 45 days. The rate adopted, it will be remembered, was 0.20 per cent per day, taking credit for a 10 per cent improvement in prevention of admissions. This is equivalent to a total admission rate per annum per thousand of 730. Deducting the injury rate of 54.39, we have a disease rate of 675.61; applying the same method as above:

$$\begin{aligned} 675.61 \times 35.6 &= 24{,}051.71 \\ 54.39 \times 45.4 &= 2{,}469.30 \\ & \quad 26{,}521.01 \end{aligned}$$

$$\frac{26{,}521.01}{730} = 36.33 \text{ days}$$

This gave a range of stay of 1 to 36.33, which appeared low, being but slightly above the peace-time rate. In view of the possibilities of a larger cavalry component, increased mechanization, greater use of aircraft, automatic weapons, air raids, and even of gas injuries, affecting cases from troops in training, a range of 1 to 45 days was adopted, in effect giving greater weight to the non-battle injury group and less to disease than actual experience appeared to support.

We may now consider separately the several remaining factors which were adopted for the purpose of demonstrating the method. There remain two which have a material bearing upon bed space required, the accumulator admission rate for the theater of operations and zone of the interior. In the case of the theater of operations it is apparent that any case not returned to duty by the seventy-fifth day in hospital arbitrarily falls into this class. By far the greater proportion of these belong to the battle injury group. Out of 224,089 such cases in the A. E. F., 51,813 or 23.12 per cent were invalided home and were, therefore, generally speaking, long-time cases. But of these, only

25,187 or 11.20 per cent were discharged for disability. Considering the extent to which this group was diluted, so to speak, by the disease group from the A. E. F., it was assumed that a little more than half this percentage, or 7 per cent of all admissions, would occupy beds for a period longer than two and one-half months. This basis is obviously incomplete and deserves further careful study. In the zone of the interior factors, a rate of 3 per cent was adopted. It has been suggested that these cases be turned over to the Veterans' Bureau. The writer considers this of doubtful advisability but discusses it at greater length in Part II of this text.

The only remaining personnel factors are those of the permanent losses for the theater of operations and zone of the interior. In the theater of operations this factor is intended to cover killed, captured, died in hospital, missing. It does not cover the accumulators. The rate adopted for the theater of operations is that, in addition to all admissions, there is a permanent loss from the force equal to one-third of the admissions for any given day or period. This attempts to link the permanent loss rate to the balance of the resistance factors adopted.

It is not possible to visualize the permanent loss rate adopted here in connection with our A. E. F. experience except from the point of view of our actual deaths within a short period. The A. E. F. losses in captured were negligible and absenteeism was practically nonexistent. In the cases of France, Great Britain, Russia, and Germany, however, the situation was quite different. Late in 1919, France had a list of missing, for example, amounting to 264,000, and Great Britain 121,000. Deaths in battle or from wounds, for all belligerents, are reported at well over seven millions. Total prisoners taken ran into the hundreds of thousands. In a war on this continent, absenteeism will be closely linked in part to the several pressures inevitably to be brought to bear upon the military authorities to discharge personnel from hospital and from the ranks. During the Civil War, with a poorly organized structure in the rear areas, this could have been anticipated. While it will be a real problem, there is no reason to believe it will assume the proportions in a future war that it did in the War of the Rebellion. As a matter of fact, the excellence of the Army Medical Service alone, which is now an assured fact, will to a large extent minimize these efforts since, irrespective of where the hospitalization is located, the people will be only too glad to leave our sick and wounded in the hands of an agency that is prepared to give them the best treatment that the country affords.

The total admission rate adopted for the theater of operations was 0.32 per cent per day, or about 1,183 per thousand per annum. It was assumed that a little more than one-tenth of this would cover all deaths or a rate of about 120 per thousand per annum, that the prisoner rate would reach something less than one-tenth of the admission rate or 110 per thousand, per annum, and that absenteeism, missing, etc., would amount to 175 per thousand per annum, making a total yearly permanent loss rate of 405 per thousand, or approximately 0.11 per cent per day, which is about one-third of the admission rate per day. These rates are far below the experience of the Allies and Central Powers, though well above that of the A. E. F.

The permanent loss rate adopted for the zone of the interior is a part of the strength equal to one-tenth of the ad-

missions during any given time. This, of course, covers deaths, *discharges*, missing, absenteeism, and again does not cover the accumulator group in hospitals. This rate was probably exceeded during the World War, but experience should bring great improvements in the selection of personnel with a resulting decrease in the discharge rates.

When the reader reaches the estimate made on bed space required for the zone of the interior, it should be kept in mind that the estimate begins with an assumption that no peace-time beds, either occupied or vacant, are in existence. This basis is assumed in order that requirements due to the emergency alone will be brought out. If the status existing at M day were included in the estimate, there would be more returns to duty and a certain number of beds made available by the evacuation of certain groups of cases, as, for instance, those being treated for other departments of the Government. Actually, the expansion of these existing installations will almost entirely preclude the use of beds in civil hospitals except in very real emergencies; it is most undesirable to plan on using such beds, since they are usually insufficient in peace time for the needs of the civil population.

In the theater of operations no provision has been made to hospitalize the sick and wounded of the enemy; many enemy wounded may be captured, and, of course, casual sickness occurs among the enemy prisoners. This will be a small additional requirement, and no basis for it has been assumed.

Turning now to the question of replacements, it may be safely said that, in our previous wars, efforts to maintain the effective strength of the command had no real relationship to the losses anticipated. In theory, there was always a connection, but even this was usually after the happenings and not before. We have never linked these two elements into a single basis for requirements, a basis carefully studied out and applied in a plan before the forces raised are thrown against the enemy resistance. Having determined upon a permanent loss rate and an admission rate, it naturally follows that the total of these two becomes the first element of the replacement demand, other than in the front areas which is covered temporarily by the pool. But this demand is reduced by the total of cases returning to full duty. The return of cases to duty, therefore, reduces the replacement demand by just that many and at the same time reduces the bed requirement by an equal number. This idea is basic throughout the method. As will be explained in greater detail later, the admissions *discharged from mobile hospitals* are very *temporary losses*. If replaced at all (it is very desirable to turn these men to their own organization, and if a replacement is sent the individual concerned cannot be sent), such replacement must come from the pool, and later, when these very short-time cases are discharged from mobile hospitals they compensate for this part of the reduction in the pool.

To return now to the basic idea just expressed above, we see the returns to duty influencing equally the bed project and the new replacement requirement. This new replacement requirement is in numbers equal to the total permanent loss plus all admissions minus the returns to duty. Putting it another way, the issue resources equal the sum of the returns to duty, the new replacements required in addition thereto to replace all admissions plus all permanent losses. The pool, therefore, which is a still

further addition to these two other resources, is provided in order that these issues may be made immediately where needed. In the above it will be noted that the returns to duty are assumed to be an immediate resource. This was done in the interests of simplicity. In practice there is a delay, of course, before a case sent to duty can be made available in an organization to cover a loss. In any special or general plan this "lag" is easily interpreted into an advance of the requirement or a retard in the time the resource is taken. When the estimation of all requirements is demonstrated in detail in Parts II and III, it will be noted that the idea of the relationship of these returns to beds and replacements is, as stated above, basic throughout the method.

In the early conception of this method it was expected that these returns to duty would have to be split up by months. This may still be done if it is desired, but it was discarded by the writer as an unnecessary refinement and as well because there was insufficient evidence available to support it, and because it would greatly complicate the situation without netting a commensurately more accurate result.

Later in Part II of this text the replacement pool is fully considered, but only from the point of view of the basis adopted. There is another possible basis for this pool, but this was not used. It is the writer's belief that the discarded basis should be most carefully considered in the future when and if the present study results in sufficient new statistical research to amplify our present knowledge of past events. The lack of this knowledge among other things influenced the writer in his decision not to advance the other idea. The discarded solution will now be discussed briefly merely to show its possibilities and limitations.

Summarizing in briefest terms the purposes of a pool of replacements in war, the following points are outstanding:

In order that *all losses* of whatever nature may be *replaced immediately wherever needed;*

In order that unusual demands for a given branch or grade, etc., may be met *when* and *where* needed;

In order that as many evacuees as possible may be returned to their original organizations.

If the above be true, we see that the pool is in reality more closely linked to losses than to any other element. It is, in fact, not linked at all to strength of the force except by way of the effect which the *adopted* resistance has upon this strength in the matter of losses. But, as will be seen, the pool basis adopted is a definite percentage of the strength with troops in the theater of operations. A more complete statistical analysis of past experience would permit of closer estimation of the temporary and permanent loss elements in our resistance factors. The pool basis could then be determined definitely with the total losses in front areas as a major premise. In connection with this we must also assume, of course, that there is known the cycle of return of the very temporary losses. In this it must be well understood that this information would not develop a *fixed rate* for temporary losses for all plans but would furnish a more accurate background for the determination of a rate to fit a given situation, and then, having this, the pool could be established upon a truly scientific basis in keeping with the resistance actually adopted. Obviously, it is unsound to assume that a pool will be the same fixed percentage of the theater of operations

strength for two resistances where one, for example, is half again as great as the other. *The basis adopted and used does not do this*, but the impression might be given that it does or the inference might be drawn that the basis adopted is the only one, whereas the writer believes strongly that later work may prove it less desirable than the method discarded.

It would be unfair to the method as finally developed if we failed to mention the tedious processes through which it went in the making. The numerous short cuts devised all came about as a result of war-gaming the factors against the strengths day by day in non-cumulative form. It is uncertain as to what additional short cuts may be developed in the future for further speeding up the processes under this method. The writer and several individuals who have been reading this text as it was being written have devised additional ones which are not incorporated. The new reader, however, may jump to the conclusion that the entire method may be briefed into a single though complex mathematical formula. The writer held to a hope of this for a long time and only abandoned the idea when it was fairly well proven to be impossible from a practical point of view.

The method has been twice studied and presented by committees of student officers at the Army War College. It is a strange piece of irony that the subject was first presented and accepted as a replacement study by a G-1 committee and not by a G-4 committee, although the basic work was done by the writer while a member of G-4 at the Army War College and was originally directed at hospitalization and not, except by inference, at replacements *per se*. The Surgeon General of the Army, Maj. Gen. M. W. Ireland, also referred to the method in his recent article in *The Military Surgeon* of May, 1928. The hospital phase of the subject was briefly presented at the Medical Field Service School at Carlisle during the Advanced Course of 1927.

It is generally well known that the War Department estimates requirements for material things upon a basis of expenditure rates or, specifically in the case of, say, ammunition, upon a daily rate of fire. This must be done if a forecast of demand is to be made for any given plan; such a forecast is of course essential as a basis for procurement. This is exactly what is needed in the case of personnel, and, in fact, it is what is done in the method which later will be described. We have merely adopted a daily expenditure rate on personnel and animals as we have always done on material in order to arrive at some concrete conclusions as to our ultimate future requirements for a given specific or general plan. While considering the method, the reader is especially urged to watch the piling up of the total requirements in man-power in the early periods of this effort. While only very reasonable numbers are placed in the theater of operations early, the personnel demand set up in the zone of the interior for their support is very large—larger perhaps than there is any hope of meeting. This is one of the lessons to be learned from the method. Whether we like to know it or not we must face the issue squarely. This issue is: without a reserve of trained personnel (to parallel our material reserve) specifically allocated in peace time for the support of combat units in war, there develops a huge requirement in the early and most sensitive period of mobilization if the combat units are to be accorded the support which they require and have every right to expect.

Notes from the Chief of Infantry

COMMISSIONED PERSONNEL, OFFICE CHIEF OF INFANTRY

Chief of Infantry
MAJOR GEN. ROBERT H. ALLEN

Executive
COL. LORENZO D. GASSER

Section I—Personnel
COL. E. G. PEYTON
COL. C. C. ALLEN
MAJOR R. E. O'BRIEN
MAJOR H. TERRELL
MAJOR L. S. HOBBS
MAJOR V. EVANS (temporary)

Section II—Intelligence
MAJOR T. B. CATRON
MAJOR S. J. CHAMBERLIN

Section III—Training and Inspection
MAJOR J. D. BURNETT
MAJOR B. MAGRUDER
MAJOR C. H. BONESTEEL
CAPT. W. G. LAYMAN

Section IV—Arms and Equipment
MAJOR E. M. WILSON
MAJOR T. LAWRENCE

Section V—Mobilization and Organization
MAJOR M. H. THOMLINSON
CAPT. P. E. LEIBER

Infantry Team—National Matches

CONCURRENTLY with the distribution of this issue of the JOURNAL, the National Rifle and Pistol Matches of 1928 will be under way. The N. R. A. series will run during the period September 1 to 8. The National Match events will follow on September 10 to 15 inclusive. The National Pistol Matches, individual and team, will take place on September 10; the National Individual Rifle Match starts on September 11, and the National Rifle Team Match starts on September 14.

The U. S. Infantry now holds the rifle team championship of the United States. The titles for the other national events are held elsewhere. The objective of all training in preparation for the National Matches is winning the National Rifle Team Match. This objective is the aim of the 1928 Infantry squad that has been training at Erie Ordnance Depot.

Capt. Elmer G. Lindroth, team captain for 1928, has sent in encouraging reports. The tryout for the selection of the most promising candidates for the Rifle Team started on Monday, August 13. The results of this tryout had not been received at this writing. This late date for the tryout was selected in order that more time might be allowed for training and developing new material. It is expected that the squad will move to Camp Perry about August 25.

Capt. Joseph L. Tupper, previously announced as team coach, has been relieved from that duty because of the

prospects of his being a shooting member of the Infantry Team. Capt. R. O. Miller, 3d Infantry, has been designated as coach of the rifle team. Capt. Sidney V. Hinds, a member of the American International Rifle Team, has joined the squad upon his arrival home from Europe.

Tactical Use of Smoke

THE utility of smoke as an artificial agent to screen Infantry advance and for other tactical purposes was again verified in recent tests of smoke bombs and airplane smoke curtains at the Infantry School. The results of the tests indicate that these means have some tactical value, but require further development before they will be considered satisfactory for extended tactical use. These tests, conducted during the Air Corps demonstration, were of short duration and for that reason are not considered conclusive.

In the tests the pilots had considerable difficulty in placing the 30-pound aerial phosphorus bombs accurately, even after a thorough reconnaissance and an exact knowledge of the positions of the objects which they were to screen. A large part of the smoke from the bomb is projected upward after the explosion, and the upper portion of this smoke cloud does not assist in screening ground elements. Consequently, a large part of the smoke produced by this method is lost. Accuracy was therefore very important, and to get it the aviators had to fly very low, well within the danger area of ground antiaircraft weapons. The smoke from a single bomb makes an effective screen, but one of very short duration. To maintain a prolonged screen it was necessary to drop other bombs periodically, The effective period of screening of a single bomb was about two minutes. In screening the advance of an Infantry unit, the size of the platoon (under atmospheric conditions that obtained during the test), at least five bombs must be correctly placed every two minutes of the advance. The most effective results were obtained during these tests in screening a given point, such as an artillery observation post.

The casualty effect of the white phosphorus was not so great as was expected. The test indicated that it was obtained only at points very close to the point of burst. The human body, protected by two layers of clothing similar in texture to target cloth, was believed to be safe from burns 9 yards from the point of burst.

The conclusions drawn, based on this limited test, were: that the 30-pound aerial smoke bomb, as now designed and as now projected from the airplane, has only a limited tactical value as a screening agent, because of the short duration of effective smoke from the bomb; and that the white phosphorus filler has only a limited value as a casualty producer, due to the small particles produced by the explosion and the short period of burning of the particles after striking.

The test of the airplane curtain was even shorter in duration than that of the 30-pound bombs. The results were proportionately less conclusive. Two tests were conducted. The first was to

determine the period of time that a combined curtain delivered by several airplanes could effectively screen movements; the second was to determine whether or not it was practicable for airplanes to lay a long screen by successively delivering smoke where the preceding plane ceased emission. Through a misunderstanding the second test was a repetition of the first. The long screen was not obtained. The combined screen delivered by four airplanes was found to be effective against observation from two to five minutes. The screen from a single plane will be of considerably less duration. The planes that laid the smoke screens flew about 100 feet from the ground, well within the effective antiaircraft range of Infantry weapons. If the planes fly higher, the density of the screen is reduced because of height of the curtain. The effective length of the screen was found to be about 1,300 yards. There were no conclusions drawn from these experiments, because the tests were little more than demonstrations. It appears, however, that low flying is essential to accuracy and effect, and that the danger to the plane from ground weapons would outweigh its utility in placing a curtain.

The two primary objects of using smoke are to interrupt hostile observation and to lessen the effect of the enemy's fire by creating poor visibility. In the tests the effectiveness of the screens was judged by the period of time in which the objects were screened from observation. After the objects became visible, a noticeable haze, which would materially interfere with aimed fire, was apparent for a longer period.

Further experiments will follow. Both methods of projecting smoke may be considered to be in a primary stage of development. Further training of the personnel and further development of apparatus will undoubtedly improve results. It is open to question, however, whether either of these methods will be found to be much more effective than artillery shell. The short duration of the screen, the uncertainty of transmitting information from ground to air, and the difficulty of effectively identifying and spotting inconspicuous objects from the air will always be serious obstacles to overcome.

Infantry Correspondence Course

A COMPLETE revision of the Infantry Correspondence Course has been in progress during the past year. This revision, made at the Infantry School, nears completion.

The notable features of the new course are the preparation of texts for each subcourse, simplification of the scope of the courses, improved sequence of subjects, and the elimination of final examinations.

A special text containing essential information for the student is being prepared for most of the subcourses. This step is believed to be a considerable improvement over the present method of using training and army regulations as texts. The condensed form of the special texts will save time and confusion in seeking necessary information in a variety of texts. It will probably be more economical than the old method of issuing regulations.

The course is divided into three main subdivisions, corresponding roughly to rank; each course leads to the next, and

all lead to the preparation of the student to take the command and general staff correspondence course. The subdivisions of the Infantry Correspondence Course are, Basic, Company Officers', and Advanced. The Basic Course is divided into four subcourses, the Company Officers' Course and the Advanced Course into three subcourses. Each subcourse has from four to six lessons.

Instead of a final examination at the end of the subcourse, each lesson will be marked. The instruction is built on the applicatory system, each lesson to contain a practical problem for solution.

The work of revision has entailed considerable labor. Five officers at the Infantry School have been engaged for one year in preparing the texts and lessons. The course is a distinct improvement over the old course, which was prepared hurriedly after the World War. It should bring about increased enrollment and improvement in the number of officers who complete the courses.

Cardboard Targets for Bayonet Dummies To Be Tested

AT THE suggestion of the range officer, Infantry School, the Ordnance Department is manufacturing a number of cardboard targets for bayonet dummies for test by the Infantry Board.

Preliminary experiments in the construction of bayonet dummies by the range officer, Infantry School, indicate that the use of cardboard targets, similar to types "E" and "F" silhouette targets, to face the dummy was a considerable advantage. By using the facing, lighter material can be used in the construction of the dummy, thus lessening the danger of injury to the bayonet. The issue of a type target such as above suggested will tend to standardize the size of bayonet dummies.

Pyrotechnic Projector

A PYROTECHNIC projector, bayonet tromblon type, with self-contained firing mechanism, has recently been successfully tested by the Infantry Board. This device was originally contemplated for the double purpose of projecting both signal shells and grenades. It has not been tested as a grenade discharger because a satisfactory grenade has not yet been developed.

The pyrotechnic projector is a cylinder about 12 inches long by 1½ inches in interior diameter. It screws into a base that contains a trigger mechanism. The projector can be attached to a rifle or can be fired from a pike stand. The trigger acts on a primer in the base of the signal shell, which in turn ignites the powder charge that propels the shell from the cylinder. During these operations a time fuse, which regulates the time of burst of the cartridge, is ignited.

During the tests the average height of burst was found to be 457 feet, as com-

pared with 305 feet of the VB rifle signal lights. Three kinds of signals were used in the test: white star, red chain, and red star cluster. The white signal was found to be more easily seen under all conditions of visibility encountered. From the results of the test it was concluded that positive identification of all signals could be obtained under the most favorable visibility conditions at a distance of 1,000 to 1,200 yards.

After certain recommended modifications, this device is considered suitable as a projector of pyrotechnics for Infantry. However, its use will be greatly enhanced if it can also be used as a grenade discharger. The development of a grenade for use in the projector has been recommended.

Specialty File

FOR a number of years there has been maintained in the Office of the Chief of Infantry a specialty file of Infantry officers. The purpose of this file is twofold. First, it enables the Chief of Infantry to select officers for duties that call for special qualifications; and, second, it assists the Chief of Infantry in assigning all officers to duties in which their special knowledge will be most beneficial to the Service.

The specialty file was started in 1921. At present it includes fifty-one general specialties. These are subject to frequent change as experience is gained. Such general specialties as "languages" and "athletics" are divided into subspecialties corresponding to different tongues and athletic activities.

Information contained in the specialty file includes data on all of the qualifications mentioned in Circular 50, War Department, 1925, as well as on many others that increase the value of an officer to the Service, not only in the performance of routine military duties but also in other particular lines of work allied to the military. Among these are horsemanship, care of animals, polo, editorial work, linguistic ability, duty with civil governments (Germany, Nicaragua, etc.), motor mechanics, radio experts, and so on.

Basic data for inclusion in the specialty file are, in general, taken from paragraph *g* of the efficiency report. Circular 50 stressed the necessity for reporting special qualifications of officers. For a considerable period the requirements of this circular produced very meager results in so far as Infantry officers were concerned. Lately, however, there has been a decided improvement in this respect, and with this improvement it is hoped that within a year the specialty file will be better than it has been in the past.

Reviews and Discussion

Loyalty, or What Have You?

TACTUS

NOW we know, for it has been told. The rustling of the leaves on the shoulders of the fossilized field officers has died down like the tumult and shouting of poetic memory. Longstreet is back in command of his corps, having been relieved of being "a sort of staff officer" in addition to his other duties. At last we know what loyalty really is—according to A Junior Officer (hereinafter referred to as AJO, which, by the way and entirely irrelevantly, is Spanish for that pearl of the Mediterranean littoral—garlic): *loyalty is nothing more nor less that plain ordinary obedience!*

With a rattle of the keys and the space bar AJO writes: "Feelings have no place in an army." "The only thing in God's world that matters is the job." "They do not cooperate: they work." "In the military service, there is no such thing as disloyalty. What might be called such is merely disobedience. . . . He was not merely disloyal. He was a disobedient, procrastinating obstructionist." AJO gets into a tail-spin on that last quotation. First he says that there is no such thing as disloyalty, then he says Longstreet was not merely disloyal, he was disobedient!! Inconsistent, what?

We "reverend seniors" (not being a chaplain, I, for one, hope he pressed the N key by mistake, and meant to write "revered") discussed loyalty as a thing wholly apart from mere obedience. The prisoner obeys his guard with no vestige of loyalty involved, and I trust that AJO will pardon my resorting to this exaggerated case to prove my point.

Everything that AJO says about obedience and discipline is granted (except that statement or inference that loyalty is nothing else but). If a job is to be done, it *is* done in the Army; that is the traditional Army way. What AJO loses sight of is the *lubricating* effect of *loyalty* on the machinery of *obedience*. The wagon will move without grease on its axles, but friction and squeaks make pulling it unnecessarily arduous and decidedly unpleasant. Just a little of the oil of loyalty applied at the right places, and squawks and friction are reduced. Just as courtesy reduces the friction of human contact, so loyalty makes obedience almost a pleasure rather than an irksome job. The wheel that needs grease makes the most noise, just as the disloyal officer makes the loudest squawks.

AJO says: "In an army, subordinates should spend their efforts, their time, and their thoughts on accomplishing their tasks, not in talking, thinking, or 'feeling' about their superiors." Does he mean superiors or seniors, or both? May we not think, feel or talk about the President, the Secretary of War, Congress, the General Staff, our in-

structors, and all those ahead of us on the relative list? In the words of the editors of *Time* magazine, a thoroughgoing reprimand to Charles Kingsley for writing:

"As we pledge the health of our
general, who fares as rough as we,
"What can daunt us, what can turn
us, led to death by such as he?"

The arguments of AJO would be fine *if he were discussing obedience and discipline*, but the title of his article is "Practical Military Loyalty." Tennyson defined obedience and discipline in his "Charge of the Light Brigade" when he wrote: "Theirs not to reason why, theirs but to do and die," or words to that effect. AJO's article and its title remind me of the recitation made at West Point by a cadet who had a marvelous memory but not much else. On one occasion, when given an assignment for recitation and not being sure whether the subject assigned him was covered by one part of the text or another, Mr. Ducrot wrote one part on the blackboard; it was letter perfect; then, to play safe, he sounded-off in his oral recitation the other part of the text. This, too, was verbatim. The instructor looked at him amazed and said, "Mr. Ducrot, had I heard you recite and not seen your board, I would be forced to give you a 'max'; had I seen your board and not heard you recite, I would be forced to give you a 'max'; but, having seen your board and having heard you recite, I am going to give you a zero."

Loyalty *is* a sentiment; it *is* a feeling. Munson in his "Management of Men" on page 254 says, "Loyalty is a sentiment capable of spurring individuals to their best efforts and coordination of purpose," and "Loyalty has been defined as the willing, practical and thoroughgoing devotion of a person to a cause. . . . It can be aroused by proper stimulating conditions acting upon innate tendencies." I recommend the study of "Management of Men" to AJO. He has much to gain from this book if he really means what he says when he wrote "feelings have no place in an army." God help a company whose commander has no feeling for his men, and hard is the way of a commander whose men have no feeling for him. Such a unit lacks that divine spark known as morale. It will obey orders, but it has no interest in its work. Soldiers are human beings and are creatures subject to emotional reactions—they absolutely are not the feelingless automatons that AJO would have us believe them to be. The unit that admires, respects, and loves its commander will go through hell and high water for him; for the feelingless martinet, it will obey orders, it will be disciplined, but—I leave the reader to finish it in his own words.

I repeat—*loyalty is the lubricant in the military machine.* Obedience or discipline makes the machine go, but loyalty makes it run quietly, efficiently, and smoothly.

British Armored Force Operations

THE British Armored Force gave an interesting demonstration at Salisbury Plain recently in which the force attacked an infantry division on the march. The following account is extracted from *The Army, Navy, and Air Force Gazette*, British.

"The Experimental Armored Force.

as at present constituted, includes the 5th Battalion of Medium Tanks, part of the 3d Battalion R.T.C., with light tanks, armored cars, the 9th Field Brigade and 9th Light Battery, R.A., 17th Field Company, R.E., Armored Force Signal Section, and 2d Battalion Somerset Light Infantry with machine guns, mechanized for movement. One of the chief features of the day's operations was the wonderful concealment achieved in a comparatively open space. A great difficulty militating against efficient maneuver was the shortness of the light or two-man machines, only the original eight Carden-Loyds and Morris-Martels being available. As the importance of these machines was emphasised at last year's tests it was somewhat surprising to find that the type had stayed where it was. For the present year, the Experimental Force will devote itself to improving the groundwork of its mobile action, both in command and supply.

"Whereas on June 18-19 the Armored Force was engaged in the pursuit of a beaten enemy, the general idea on this occasion was that a Northern infantry division was marching south on Salisbury and that the Armored Force of Southland had been sent to intercept it. The Armored Force moved up under cover of night on July 4 from Winchester and lay *perdu* in some woods near Cholderton. From there the light armored vehicles and a company of Somerset Light Infantry (motorized machine guns) were sent in a westerly direction to head off the enemy, supposed to be advancing down the Upavon-Amesbury road. The light vehicles engaged the enemy's flank guard by bursts of fire from quickly changing positions and then the machine gun company was carried forward to a point on a ridge from which they could hold these elements. The Northern flank guard then proceeded to attack them, but before this attack could be developed the heavy group (two companies of Vickers tanks) came forward on each flank, supported by a squadron of fighting aircraft, and dispersed the attack. The remaining Southern machine guns came up to the ridge while the tanks rallied, and when word came that the enemy was hastening to the support of their already annihilated flank guard, the fighting aircraft were called on to attack the enemy while crossing the bridges, and the third company of Vickers tanks, supported by self-propelled guns, hastened to meet them along a concealed route. Its flank was protected by light tanks, and they, in turn, were screened by alternately advancing machine gun companies, with a cloud of armored cars on their flank. Such a demonstration of fluidity and speed was most impressive, but even more impressive was the efficiency shown in an open space in avoiding observation and damage from anti-tank gunners."

Question: What anti-tank weapons does the British infantry carry?

The Regular Army Infantry

An Experimental Wire Trailer

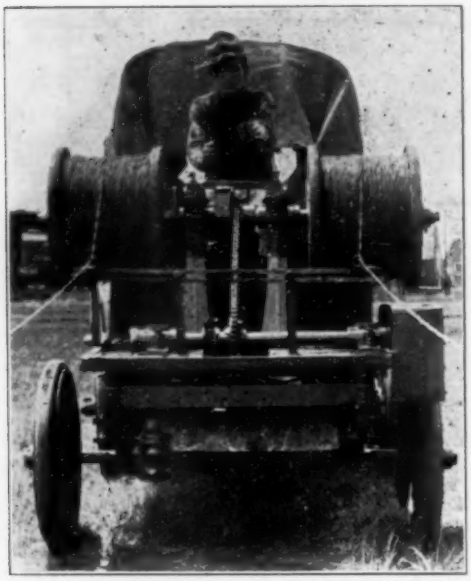
LIEUTENANT WILLIAM T. FITTS, JR., Communications Officer, 21st Brigade

THE 21st Infantry Brigade is using a new type of wire trailer at Schofield Barracks, Hawaii. It was constructed at the request of the writer by the post ordnance shop, Schofield Barracks. All of the material was available, so that it was not necessary to expend any funds.

The present two-horse reel cart does not fulfill the requirements of an Infantry brigade headquarters. It holds slightly more than 2 miles of outpost wire. After laying two lines for 1 mile, it is necessary to stop, obtain more wire from another vehicle, and wind it on to the drums of the reel cart before more wire can be laid from this cart. This is a slow and laborious process. As the communication platoon of the 21st Brigade, in a normal field exercise such as the occupation of the "North Shore Sector" of the Island of Oahu, must lay about 60 miles of wire, the utter unsuitability of the two-horse wire cart is apparent. The same objections apply to the various types of artillery reels issued.

Realizing the inadequacy of the present two-horse wire cart, an attempt was made to obtain permission to convert a machine gun cart into a wire trailer that would take commercial wire reels. Permission was refused on the ground that a machine gun cart could not move at truck speed. Authority was then requested and obtained to have built a removable wire laying and picking up unit that would fit into a truck bed. Before work was started on this unit a wire trailer was authorized for the Headquarters Company, 21st Brigade, as part of the equipment for the partial motorization of this organization. Since no satisfactory wire trailer was available, the division ordnance officer, during April, 1928, authorized the post ordnance shop to construct a wire trailer according to the general plan which was desired. This resulted in the trailer described below.

An antiaircraft machine gun trailer, Model 1928, one and one-half tons capacity, is used. The rear half of the wooden bed is cut away, and in this space is mounted an adjustable shaft that will take any size commercial reel now issued. This shaft is attached by a sprocket and chain to a counter-shaft which is fitted with a clutch. This counter-shaft is driven by a chain from a sprocket attached to the right rear wheel of the trailer. The rear springs of the trailer are blocked to keep the chain tight at all times. A foot brake is provided on the main shaft to control the speed of the reels when the clutch is disengaged. Two guide-fingers controlled by a lever and arm guide the wire evenly on the reels while it is being recovered. In the center of the trailer



THE TRAILER AT WORK

body are a combination box for the tools and equipment, and a seat for the man who operates the clutch lever, the guide lever, and the foot brake.

Eight 1-mile reels of W-44 outpost wire can be carried on the trailer. The truck that pulls it can carry from ten to thirty more such reels, depending on its size and other load. In laying wire, as soon as a reel is emptied it is placed on the trailer or truck and a full one is put on the shaft. In recovering wire this procedure is reversed. This obviates the principal objection to the two-horse reel cart, which is the necessity for stopping to rewind the wire on or unwind it from the reels in laying or recovering wire. In a recent test, during which some 60 miles of wire were laid and recovered from the trailer, it proved very satisfactory and saved a great deal of both time and labor.

Company Commander

SERGEANT HERBERT E. SMITH, U. S. Army

I SAW you at Cantigny, leading your men in assault. I saw you going grimly through the casualty list after, and knew that you'd be sacrificing needed rest in the C. P. writing a letter back home to some bereaved ones. As the Argonne drive progressed I saw you getting leaner and greyer.

On that long, hard trek up into occupied Germany I saw you carrying packs—the packs of exhausted Doughboys. I witnessed your tact, your diplomacy, when we pulled into billets in the Rhineland.

I have seen you on the firing line at the target range, sprawled alongside a potential "bolo man," working, striving, sweating, in an effort to correct some fault your best N.C.O.'s could not seem to overcome.

When that man qualified I saw your burst of pride, quickly suppressed. I heard you say to him, "That's the stuff! You'll make expert next year!"

As your company clerk I know the long hours you have spent in the orderly room, being guide, philosopher, and friend to the men of your outfit. They came to you with their anxieties, their troubles and home difficulties. They looked to you as to a father, and you did not fail them.

I've seen you dig down in your none too thick wallet to lay five or ten dollars on the company ball team, when

you knew we didn't have a Chinaman's chance to win.

In the early hours of the morning I have oftentimes seen you walking about the post, your head bent in deep thought. We were your problem.

Is it any wonder we all of us, from the grizzled top right down to rawest buck, respect and admire you? For want of a better name we call you "Old Man."

So, here's to you, "Old Man!"

Short 77,000!

Colonel H. P. Hobbs, Infantry

WHEN Congress passed the National Defense Act in 1916 and amended it in 1920 it had in mind a peace strength Regular Army of 17,000 officers and 280,000 men.

This Regular establishment to garrison our foreign possessions, to provide an expeditionary force when needed, to take care of domestic disorders when necessary, to train the National Guard, the Organized Reserve, the Reserve Officers' Training Corps, the Citizens' Military Training Camps, etc.

Now we have about 12,000 officers and about 118,000 enlisted men. We are short about 77,000 officers and men. Yet the work must be done and more of it each year.

Take out of our peace army (already 77,000 short of what it was intended to be) the special duty, the necessary fatigue, the guard, the furloughs, the sick, the men in confinement (not many of these) and—Well, the small boys are singing a song that has something to do with "a Chinaman sitting on the fence trying to make a dollar out of fifteen cents." This is what a colonel just assigned to command a regiment is up against.

Any questions? Posts!

Here and There with the Infantry

TWO more good Doughboys have won the Soldiers' Medal. They are 1st Lieut. Carlyle C. Dusenbury, 11th Infantry, and Pvt. Edwin C. Sherer, Company C, 7th Infantry.

Lieutenant Dusenbury's citation tells of his heroism in rescuing an enlisted man from drowning. That of Private Sherer tells of his extricating three passengers from a car that had rolled down an embankment and into the icy waters of a lake.

That's the stuff of the Infantry!

On July 14, his excellency, Theodore Christianson, Governor of Minnesota, decorated Brig. Gen. Lucius C. Bennett, 92d Infantry Brigade (Colonel, Infantry), and Col. Maurice D. Welty, 205th Infantry (Major, Infantry), with the Minnesota Medal of Merit.

The citation of General Bennett states that "Upon his arrival in this State in 1923" he "was confronted with a problem of considerable magnitude, that of organizing the Division, State, and Brigade staffs. He went about his task

with keen determination and by his energy and zeal completed the organization and thereby laid the foundation for efficient staff service in the event of an emergency. He has by his example reflected great credit upon the military establishment of the United States and the State of Minnesota."

Colonel Welty's citation states that "As commanding officer of the 205th Infantry he displayed marked ability both in its organization and training, and by his zeal, example, and devotion to duty has brought the regiment to a high standard of efficiency. He has conducted the affairs of his regiment with exceptional judgment and ability, showing himself always possessed of a full grasp of the situation and its needs.

"He has rendered exceptionally distinguished service in the development of the National Guard of this State and his counsel has proven of the utmost value at all times. He has won the respect and confidence of the community in which he has been stationed and of the civil and of the military authorities of this State."

It is a distinct pleasure here to record the accomplishment of these two Infantry officers and the healthy attitude of the authorities of the Minnesota Military Forces.

* * *

DURING THE week of July 24 to 28, Cheyenne, Wyoming, held its Rodeo for this year. Fort Russell did its share in making the Rodeo the greatest ever held at Frontier Park; the exhibitions by troops from the 1st Infantry, 20th Infantry, and 76th Field Artillery made the stands ring with applause.

During Frontier Week a military tournament was held at Fort Russell on July 24 and July 27. The winners of the events, which were in the nature of individual and unit competitions, were well distributed among the three units that took part.

The Secretary of War and his party were the guests of Brig. Gen. F. C. Bolles, commanding the 4th Brigade, at the Frontier Days Rodeo.

* * *

ON JULY 21, the officers of the 415th Infantry wrote the following letter to the officers of the 1st Infantry:

"The officers of the 415th Infantry wish to take this opportunity and this medium of expressing to the officers of the 1st United States Infantry, their sincere appreciation of the whole-hearted efforts, on the part of the officers of the 1st Infantry, in the matter of training and instructions of the officers of the 415th Infantry in the two weeks training period just closed.

"The officers of the 415th Infantry feel that their training contact with the 1st Infantry has been most pleasant and instructive and that the training period just passed is looked upon as highly successful from the professional military standpoint. The 415th Infantry will look forward to future training periods with the Regular Army, with the experience of the two weeks just passed always uppermost in the minds of its officers as a model and standard of comparison."

This speaks for excellent work in the interests of the National Defense.

* * *

THE FOURTH Annual Fort Sheridan Horse Show, held on July 13 and 14, was most successful. Given for the double benefit of the Army Relief Society and for the fund for the education of Post children, the show attracted large crowds. More than 150 horses were entered in the 34 classes. Army officers showed up well in many of the events

that were open to both officers and civilians.

Maj. Gen. Paul B. Malone was honorary chairman of the Horse Show Committee, and Col. Perry L. Miles, 2d Infantry, was active chairman.

* * *

At Fort Snelling, the eighth polo season is well under way. The Northwest Tournament was held from July 21 to 29 and the Invitation Tournament from August 25 to September 2. In the handsome official program for the polo season, Col. W. C. Sweeney, the new commander of the 3d Infantry, praises the "fine spirit of cooperation of the civil community and the Army at Fort Snelling."

* * *

The small bore rifle team of the 7th Infantry, Col. F. W. Rowell, commanding, had its most successful season during the winter and early spring of 1928. Organized in January, 1928, it fired many matches with other Infantry regiments and one college before it undertook its most important matches, namely, the 7th Infantry Small Bore Match and the National Rifle Association Military Matches, Division A and B. The former match was inaugurated by the 7th Infantry. The regiment offers a cup to be competed for annually by all Infantry regiments of the Army, under conditions prescribed by the 7th Infantry. The 7th Infantry team won the match for 1928.

In the National Rifle Association team matches, the 7th Infantry won the Division "B," IX Corps Area championship, which permitted it to fire for the national championship against the winners in all other corps areas (Division B). In the shoot-off, the 121st Engineers, D. C. National Guard, placed first, and the 7th Infantry second.

CHIEF OF INFANTRY'S COMBAT SQUAD, CO. K, 19TH INF., JUNE, 1928

* * *

Inasmuch as considerable publicity concerning high machine gun scores has been noted, the 22d Infantry wishes to present its champion in the person of Sgt. Waddislaw Rathiewicz, Company "H," 22d Infantry. In the regular machine gun target season of 1928, Sergeant Waddislaw made a score of 422 on the range at Camp McClellan, Alabama. The score was as follows:

1,000 inch	169
600 yards	152
700 and 800 yards	64
1,000 yards	37
Total	422

The following are some of the activities engaged in by the 22d Infantry during June, 1928:

The major activities at Fort McPherson, have been the rehabilitating of the post, converting old warehouses into noncommissioned officers' quarters, etc.

A new polo field involving much fill work is being constructed largely by 22d Infantry personnel.

A new riding circle, much of which has to be blasted out of rocks, is being constructed.

The supplementary rifle and pistol season, at this station, was completed

during June, with the following percentage of qualifications: Rifle—94.73; Pistol—53.84.

On June 10, 1928, the 22d Infantry sponsored "Veterans Day" for the benefit of the disabled veterans of Atlanta. The events consisted of a ball game between the 22d Infantry and the Southern Railway and a polo game between Fort McPherson and the Governor's Horse Guards of Atlanta. The local teams were victors and the Veterans were given a neat sum of money from the proceeds.

The 3d Battalion, 22d Infantry, is engaged in conducting the C. M. T. C., at Camp McClellan, Alabama.

* * *

On August 22, Col. George E. Stewart took his regiment, the 28th Infantry, from its three northern New York stations to Camp Perry, Ohio, for service at the National Matches. The announcement of this move, issued by the regiment, recalls the war record of the 28th and mentions the names of some of the prominent officers who formerly commanded or served in the regiment.

* * *

CO. L, 33D INF. CHAMPIONS

That it is not too hot to play basketball, the accompanying picture of the team of Company L, 33d Infantry, Capt. Floyd Marshall, commanding, attests. This team won the 33d Infantry championship at Fort Clayton, Canal Zone. For having won this same championship in 1925, 1926, and 1928, Company L has been awarded permanent possession of the Post basketball trophy.

* * *

In the Departmental Small Arms Competition held at Schofield Barracks, Hawaii, June 18-25, 1928, the 35th Infantry distinguished itself again in military as well as athletic contests. Its members won three first prizes and placed four men out of fourteen on the departmental rifle team.

The regiment won the following places: Machine Gun Section Competition, Company M, Capt. R. F. Wolthour, Jr., commanding, and Sgt. H. M. Scott, section leader; Antiaircraft Machine Gun Competition, 1st Lieut F. D. Ross, Jr., in charge of the team; Infantry Howitzer Platoon Competition, 2d Lieut C. W. VanWay, Jr., in charge of the team. First Lieut. A. R. Nichols won first place among the officers and third place in the Rifle Competition; 1st Lieut. J. B. Cole won second place as an officer in the Pistol Competition; Sgt. C. Malinkowski won second place as an enlisted man in the Pistol Competition; and Corp. S. Workman won a bronze medal with the automatic rifle.

* * *

On June 2, 1928, the 45th Infantry (P.S.) held a regimental commendation review for the purpose of honoring the outstanding soldiers of the organization and celebrating its tenth anniversary.

The Chief of Infantry's Combat Squad, the high point winner in rifle marksmanship, the man who stood first in division communications school, the two outstanding soldiers of each company, and the medal winners in the Philippine Amateur Athletic Federation

games were the men who received beautifully engraved commendation certificates from Col. James B. Kemper, their regimental commander. After the presentation of certificates, these soldiers took position with the reviewing officer and the regiment marched in their honor.

The ceremonies of the day began at 6:30 a. m., with a serenade by the regimental band. At 8:30, the regiment and its guests were assembled in the grandstand on the post athletic field, where a program, consisting of selections by the band, a talk on the regimental history, by Capt. Owen Summers, the Adjutant, and an inspiring address by Colonel Kemper, was held. Then came a five-act circus that kept gales of laughter flowing from the audience for more than two hours. This entertainment was entirely soldier talent, and was arranged by combining two of the companies of the regiment for each act. At midday special dinners were served in all companies, and in the afternoon a baseball game was played between teams representing Headquarters Company and 2d Battalion, and the Service Company and 3d Battalion.

The regiment again assembled at 7:30 p. m., this time at the Y. M. C. A. theater, where it listened to a concert by the band, after which a fine movie show, furnished for the occasion by the regimental fund, was shown.

The regiment is now giving its attention to the annual school season.

* * *

THE 4th Infantry has some boxers of which it is proud. The accompanying cut shows the Fort Lincoln boxing champions for the year 1928, who won the championship for Company I of that regiment.

THE FORT LINCOLN BOXING CHAMPIONS

Top row, left to right: Ambromvcz, Richard, Nicholson, Lieut. H. C. Jones, commanding; Ogden

Bottom row, left to right: Graytak, Laurent, Ortega, O'Dell

The National Guard

Property Responsibility and Accountability

THE problem of property responsibility and accountability in the National Guard is most important. Property must be received and issued, often under adverse conditions. However, regardless of conditions, the problem of responsibility and accountability always remains, and whenever suggestions are offered to allay the worries of this vexing problem, everyone is eager to take advantage of them.

The Chief, Militia Bureau, has requested the INFANTRY JOURNAL to publish the following paper which Capt. Joseph D. Eisenbrown read at the state convention of the National Guard Association of Pennsylvania, and which he believes to contain much information that should prove helpful and interesting to anyone concerned with property responsibility and accountability.

Proper Responsibility Equals Property Accountability

CAPTAIN J. D. EISENBROWN

Proper Responsibility—Property Accountability; sounds funny on first hearing it, but in actual and practical experience it has proven itself true and convincing.

You, Battery, Troop, and Company Commander, are neglecting a paramount phase of training in your schedule when you eliminate proper responsibility for property, and yet you're not wholly to blame for in no T.R.'s to my knowledge is anything written that you should instruct your command that a shirt cost so much, a pair of shoes so much, and so on down the line. Right here is where you are obliged to fall back on your training regulations, those gained by initiative and experience, and governed by the application of good, common, every day horse sense.

When the office of the Quartermaster General receives a signed shipping ticket from the Property and Disbursing officer of a State he knows he is relieved of a certain amount of property having a dollar and cent value. When the Property and Disbursing Officer unloads to a Battery Commander the same dollar and cent value remains only under a different signature, but when the battery commander unloads on to the enlisted man, the only thought left with the enlisted man at the time is that he has received something for nothing and the enlisted man's first thought is now, What am I going to do with it? Mind you, the dollar and cent value has not changed; the signature is the only change in the whole transaction. Your personal training regulations must now begin to function. The enlisted man must be trained to realize that this property is worth so much money, and in cases he must be made to realize it is worth twice as much as it actually is in order that it will leave a lasting impression on his mind that it is something worth while taking care of.

As a practical example we'll take an

article that is not on the books of the Property and Disbursing Officer but a small item that often gives lots of trouble—the locker key. Anyone knows that a small locker key can be made for the sum of fifteen cents in quantity lots. Our price to the consumer—the enlisted man—is one dollar. Now just what is the effect? In one three-month period prior to the installation of our super price system we had to replace about thirty-five locker keys; I refer to three-month periods for the fact that every three months each man draws his drill check; and we check all property prior to our paying an enlisted man. What he doesn't have he pays for and that ends it; no excuse of it being home or in his other trousers is accepted. In the last five years after our system of check up has been functioning we have only had to replace on an average of ten a year, less than one a month, because the enlisted man realizes that a dollar is a hell of a price to pay for a locker key. Now, then, apply the same method to the other articles issued and you'll see the point. I'll agree it is not in written regulations and that doesn't bother me a great deal, for I am responsible for the property issued to me, and I place proper responsibility on the enlisted man to equalize and insure my property accountability.

You might wonder how in all the world we can check a man's property on every pay night. First of all we never burden a man at any one time with more property than he can actually use, i. e., one hat, one cap, one necktie, one shirt, one pair of shoes, one pair of leggins, one pistol belt and bullet pouch, one dress belt, one slicker, one hat cord, one uniform, one first aid pouch and packet, one waist belt, and when he comes along in turn to be paid he has his property or he pays for it. He has an individual locker to keep this property in and it's kept there or we know why. He never knows when we are going to look for it, but within two or three weeks after he enlisted he knows we've been peeping and the minute an article is out of place he is required to report to the battery commander and explain why his slicker was out of his locker on such and such a date and before he has a chance to explain he's got an extra detail on his hands immediately after the drill period. Shovelling the coal pile around, cleaning out the furnace, sweeping the pavement, washing windows or juggling snow or whatever we can find for him to do, and we always find something; if necessary the pack is an article always agreeable to the enlisted man for disciplinary purposes.

You might feel that with the explanation herein presented that we are a hard boiled outfit and hard to get along with, but let me assure you that in handling my organization, now going on its seventh year of existence, ninety-five per cent of my enlisted personnel have never been short an article, with the result that my property always checks with a little to spare in my favor for good measure; therefore the system is practical, substantial and conservative. If you're in business you can readily realize that the business is just as thrifty as the bank balance shows each day; therefore your property accountability is only healthy when the credit side predominates. I have never lost any sleep over property shortages for they are something I know nothing about. I have never had any squabbling to do with any officers relative to surveys, etc., and I never lost any property on a deserter because the property is where it belongs in the locker and not on or in the hands of the soldier.

Several officers have stated to me that it's easy for you—you have everything in your armory—well, there are plenty of armories in the state, and plenty of organizations that don't have them, but no matter what condition would exist I want to assure you that I would always be one or two ahead and I don't want you to feel that that statement is a boast, but it is explicit confidence in my system, and I would have a system of some sort whether I had an armory or not.

The question now arises: Well, what in all the world do you do with the rest of the property that is required for actual service? I have brought with me a working scheme of the inside of the quartermaster supply room, and the supply room of the Master Sergeant. In the first photograph I present to you our care of Ordnance Property. This is an important item of issue, something that easily walks off; therefore it is first to be considered. You will note along the wall we have a chart with each enlisted man's name appearing with the rack number, pistol serial number, and in itself it presents a neat appearing job; it's our own get up. When our men leave the drill floor the first thing they do is to turn in their pistols and at a moment's notice one can readily see that every pistol has a place and every one must be in that place. The next room we enter we find every packing box, lantern, shovel, axe, pick, kitchen equipment, in fact every item needed to shove off when necessary, every article is painted regulation O. D. and lettered in black, and all articles are kept sharpened and in order and must be ready at all times. We allow one month after an encampment to have every article ready for inspection. We pass on from the travelling equipment into the individual equipment room. You will note from the next picture that we have our list right in front of us with the enlisted man's name and bin number, our overcoats are kept in a moth proof lined closet, and what few articles that are not in the bins are presented in the locker in the rear. The last photo of the quartermaster room shows just the amount of responsibility we assume for the enlisted man, in order that he has nothing to think about except the articles he actually has in his possession, and that is the secret of our operations, our own training regulations applied with common sense business principles. The individual equipment kept in each enlisted man's bin is neat and clean, shoes are well fitted, with perfect soles and heels; in fact the picture will tell the story better than I can explain it. Equipment is complete, including wash cloth, soap, razors and blades. Here again we allow one month after an encampment period to have all equipment in the bin in the order in which you see it, and it does not drag out until one week prior to our Federal Inspection as is the case in many instances that I know of, but we are prepared and ready for a Federal inspection any time, no matter when they come. Our Supply Motto is "A place for everything, and everything in its place."

Again, gentlemen, you might wonder how did this system all come about. It began to dawn on me about five years ago at Mt. Gretna at one of the four day schools, when our good friend Colonel Luttringer got up and made an appeal to every commander that something was rotten with property in the hands of organizations. His last words to me were, "I'll never audit your property; I'll never advise you how you stand, but each and every battery commander must put his cards on the table with mine, and

we'll adjust." Fair enough, wasn't it? And still fairer he assured us that when the audit was over, every ticket checked, you would know just how you stood on this all important question. It didn't take me long to grasp this golden opportunity to know just where I stood, for I felt that working in the dark for two years was about enough and I was rearing to go. We made an appointment with the Colonel; in fact we were one of the first to show our cards, Captain, Lieutenant, and all papers from the very day of existence were ushered to Harrisburg and the check was on. Needless to state the result, for the colonel received two Mack trucks he knew nothing about, shoes, about thirty woolen uniforms and the good Lord only knows what else, however, again showing the system automatically worked prior to this new inspection for we were way ahead. There were two adjustments in my favor, one a boiler and the other either an axe or kitchen knives. We started this check up at eight o'clock in the morning, for we were there the minute the doors opened, and we arrived back to our armory at twelve o'clock that night feeling that we had made one of the greatest steps forward in our organization. We went through so many records and compared so many papers that shipping tickets, requisitions, receiving reports were on my mind for a week thereafter; however, we accomplished a step forward that has never relaxed to this date and never will as long as I am associated with this organization, for the men and officers are trained to the system of being on the dot if not a little ahead. The following year we went back to the USP&DO for audit, starting again when the doors opened and we went back to the armory at six o'clock, and the last audits we have had have simply been here at the opening hour and been at our armory by noon, thus firmly convincing anyone that the system has proved itself a success.

We know that when we send equipment in for replacement we can depend that our man will return home that evening with the exact articles that we requisitioned, and that is because the USP&DO knows exactly how we stand in relation to his records and therefore differences are as rare as losses, in fact we have only had one difference with the USP&DO in the last three years and we immediately compared all receipts and returns and again we came out on top, the articles in question came forward by parcel post and the office of the USP&DO advised us of their error. It didn't take nine copies of this, that or the other thing, but within twenty-four hours our accounts were adjusted, to the satisfaction of all concerned.

Therefore, gentlemen, summing up my little story, do you really believe that *proper responsibility* equals property accountability? Do you believe me when I tell you that property is the easiest part of my work? It's so, no matter what your thoughts are; it's a fact, records prove it, my officers and men are trained to it, as they are trained to every other functioning of their battery. You don't accomplish it with 1½ hours drill a week on the part of anyone, but hearty cooperation from the private on up spells success from any angle, be it property, drill, motor equipment, uniforms, or whatever you can name. Again let me emphasize proper responsibility trained in your organization as you would communications, military courtesy, guard duty or what not equals property accountability in the last sense of the word.

Training the Companies of the Infantry Battalion

THE limited time available for conducting the field training of the National Guard presents a difficult problem. This is especially true of the training of the Infantry company and its subdivisions, as well as of the many specialists. If sufficient time were available, the task would be much simpler, but, conditions being as they are, each State must seek the solution best suited to its needs.

The following outline of a plan that has been applied successfully, with some minor modifications annually, over a period of several years in a State that has a complete division, is so arranged as to permit a maximum of instruction in a minimum of time.

The plan provides for group training in: the tactical principles; the duties of the leaders; musketry, communications, bayonet, grenades, etc.; marksmanship.

All instruction is conducted in specially prepared areas, under the supervision of selected instructors. However, this arrangement should not be confused with the so-called "block system," for at no time are the unit commanders deprived of command of their units. The instructor never assumes command; the responsibilities of leadership and command fall at all times upon the appropriate personnel of the unit under instruction. When all the personnel of a company is not needed to form the specific group used in the instruction, such personnel or subdivisions of the company as may be needed are designated by the company commander, the remainder being grouped to observe the work.

The operation of the plan is simple. The basis of all instructional rotation is the battalion. The battalion commander is strictly accountable for compliance with the prescribed schedule so that no time will be lost in starting and completing the instruction in each area. The machine gun company is detached from each battalion and all are grouped for special instruction in much the same manner as for the rifle companies. The units are marched to the prescribed areas, time being allowed for this, where they are reported to the instructor in charge. The instructor explains the purpose of the instruction, following which the units are required to practice it under his supervision. The instructor corrects all mistakes, answers any questions, and makes the necessary explanations. The areas are so located that the least possible time is lost in marching to and from instruction.

The units of each battalion are usually able to complete the cycle of training in three morning periods. This leaves part of the training day free for work in subjects that are not included in the group instruction, e.g., close and extended order drill, and so on. The group instruction is conducted during the early days of the field training period so that it will not interfere with the tactical training of the latter part of the period.

Many variations of this plan are possible. The basic ideas are logical groupings of subjects, proper preparation of training areas, careful selection of instructors, and adherence to a suitable schedule.

Recruit Training

TRAINING and instruction of recruits is the foundation upon which the efficiency of an organization is built.

No one, who starts to build a house, would think of beginning on the roof, yet there are many who practically try to do this very thing in building an organization.

It is not impossible to build the roof of a house first, perhaps, but it is impracticable. If the roof should be built first it would have to be raised, propped and braced until the walls and foundation could be finished before it could be called a house. A house built in this way might stand and even look all right, but it would not be worth the extra effort and cost of construction.

An organization in which recruit training is delayed or dispensed with is being built in much this same way. When recruits are thrown into ranks for squad, section or platoon drill before they know which foot to step off with they are simply "up in the air." It is true, they may eventually learn to start and stop after a fashion, and find out that they must keep abreast of some and follow behind others, but it takes them a long time to learn it—and they are never sure they do it right. Even after they have apparently learned how to drill, there are many things which they do not know and which they cannot understand because they were never taught the A B C's of the soldier.

The noncommissioned officers are the builders of an organization. They are the masons who lay the foundation. A mason is paid a higher wage than a hod-carrier because his work is more important. When he becomes careless about this work he is fired. So it should be with the noncommissioned officer. If he cannot or will not do his work—cut his wages.

Give someone else a chance.

Build up the organization from the ground and it will stand.

Recruit training is neglected in too many organizations. It is not the duty of the commanding officer to teach recruits the school of the soldier, and it should not be necessary for the junior officers to do it. It is the duty of all of the officers, however, to see that it is taught properly. Every noncommissioned officer should be able to handle this work with little or no supervision from the officers. A corporal who does not know, or is not interested, enough to make sure that every man in his squad knows how to execute each and every movement required of the soldier and the squad, is not eligible for two stripes. The sergeant who does not crack down on such corporals should be a buck private in the rear rank.—*The Kansas Guardsman.*

The Organized Reserves

Reserve Board Reports on Policies

THE committee of Reserve officers that was in session in Washington during July considering the operation of administrative policies governing the appointment, assignment, and promotion of Reserve officers, has submitted its report to the Secretary of War.

The committee consisted of Brig. Gens. L. R. Gignilliat and J. R. Delafield; Cols. A. S. Begg, M. C., and C. R. Gray, Jr., C. E.; Lieut. Cols. R. C. Ward, Inf., W. R. Brooks, S.C., R. C. Lowry, M.I., and R. E. B. McKenney, Inf., and Major E. W. Smith, F. A.

The report, signed by all the members, contains many recommendations. The recommendation that Reserve affairs be solely and entirely committed to the War Department under the Chief of Staff, and that no new or independent organization should be created by Congress within the War Department or otherwise, which solely affects the Reserves, the R. O. T. C., or the C. M. T. C., jointly or severally, brought forth a minority report signed by General Delafield, Colonel Gray and Lieutenant Colonel Brooks. They held that for the development and efficiency of Organized Reserves and the Officers' Reserve Corps, the executive officer for Reserve Affairs, now in the Office of the Assistant Secretary of War, be placed under the Chief of Staff, that the executive officer should have the rank of brigadier general and should operate through and coordinate with the various divisions of the War Department General Staff, the Adjutant General, and the other existing agencies of the War Department, in carrying out his duties.

There was no disagreement as to the other recommendations, among which were: that a Guard Corps be organized to take care of those National Guard officers who desire commissions that will give them Federal recognition; that 300 hours credit is not a proper or sufficient qualification for promotion; that officers be permitted to transfer to and from unassigned status; that travel and mileage allowances should be sufficient to cover travel, sleeper, and meals; that the War Department attempt to secure appropriations for the Organized Reserves for eighteen-month periods; that unit instructors should be graduates of the Special Service Schools, and that there be more of them; that Reserve officers who serve on boards on active duty status be not deprived, on that account, of opportunity of taking unit active duty training in the same fiscal year; that R. O. T. C. graduates be handed their orders of assignment at same time that they receive their commissions; that Regular Army personnel and equipment for training Reserves be increased to meet needs; that no officer be promoted or appointed to any grade higher than major unless he shall have completed successfully courses at the Special Service School of his own arm and at Leavenworth, or shall have passed a special

examination; that the satisfactory completion of courses at the Special Service Schools and at Leavenworth shall serve to exempt an officer from promotion examination for a period of five years after the completion of the course at Leavenworth; that promotion examinations be held simultaneously in all corps areas at designated places annually; and that second lieutenants otherwise entitled to promotion be promoted regardless of absence of vacancies.

R. O. A. Active in Keeping Officers Fit

CHAPTERS of the Reserve Officers' Association in all sections of the country are organizing intensively coordinated fall and winter work programs to develop the Organized Reserves to the highest state of efficiency since its inception. The expectation is that this activity will carry to fruition the results of the new policies of the War Department now materializing in the establishment of the active and inactive status classification of the Officers' Reserve Corps.

These policies being the result of a campaign conducted by the Reserve Officers' Association several years ago to bring about elimination of deadwood from the Officers' Reserve Corps, chapter leaders in the Association work have determined to assume a heavy share in the activities of training Reserve officers.

Many of the chapters have organized schools of training in cooperation with the Regular Army instructors assigned to the various communities on duty with the Organized Reserves. In all localities the Reserve Officers' Association chapters will seek to centralize organization and contact work in order to provide the greatest cooperation with the Regular Army instructors and bring to the Reserve officers on the active list the fullest benefits of training.

In many localities the more active chapters of the Reserve Officers' Association have so coordinated relationship with civic, patriotic and educational agencies as to make the chapter the local nucleus for centralization of all patriotic activities. In close cooperation with the National Guard, American Legion Posts, veterans' organizations and city and state officials, these chapters have members on committees in charge of patriotic programs, developing support for the Reserve Officers' Training Corps in the community schools and colleges, and organizing community efforts for support of the Citizens' Military Training Camps.

One of the major activities of Reserve Officers' Association chapters in the larger communities is the organization of comprehensive plans for application in time of civic emergency, such as fire, flood, earthquake, or similar disaster.

Here and There with the Reserves

COL. NOBLE B. JUDAH, Ambassador to Cuba, returned to active duty in the United States temporarily to attend a training camp at Sparta, Wisconsin, with his regiment, the 352d Field Artillery, Organized Reserves. This

regiment is a reconstitution of the 149th Field Artillery, 42d Division, which was organized under the command of Maj. Gen. Charles P. Summerall. Colonel Judah, for many years a member of the national committee of the Reserve Officers' Association, has been active in Organized Reserve affairs since the war.

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The fifth annual convention of the Department of California, Reserve Officers' Association, will be held in Santa Barbara on September 1 and 2. Invitations have been extended to Secretary of War Dwight F. Davis and Secretary of the Navy Curtis D. Wilbur to attend the sessions. Los Angeles is in the field for the 1929 convention as well as the state presidency. Major Guy P. Sawyer, of Santa Barbara, is president of the department.

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The War Department plans to make 123 airplanes available for use by Reserve officers by June 30, 1929, as compared with 92 training type airplanes contracted to be delivered for training of Reserve officers August 1 this year.

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Infantry Reserve officers in many sections of the country will watch with interest the development this fall of plans for joint training of Reserve officers and National Guard units. The success of these plans will have an important bearing on the future methods of active training for Reserve officers.

New Appointed Infantry Reserve Officers

RECENT new appointments to commissions in the Infantry, Officers' Reserve Corps, include the following:

Majors:

M. W. Stevens, 2306 Pine St., Everett, Wash.

Captains:

M. J. Ament, 234 Evans Ave., Aurora, Ill.
J. L. Anderson, Littletown, W. Va.
H. E. Beglinger, 732 Church St., Oshkosh, Wis.
J. D. Friday, 3 Public Sq., Shelbyville, Ind.
C. T. Frimann, 4427 Spaulding St., Omaha, Neb.
J. S. Maher, 1790 Third St., Napa, Cal.
D. M. Moses, 1990 Seventh Ave., New York, N. Y.
C. A. Powell, Dexter, Mo.
G. C. Shankle, 1632 Ardath St., Wichita Falls, Tex.

First Lieutenants:

E. C. Andrus, 701 E. Third St., Crowley, Ia.
H. H. Bates, 4646 Kenwood Ave., Indianapolis, Ind.
R. L. Beatty, 279 Colvin Parkway, Buffalo, N. Y.
H. B. Curry, 912 W. Decatur, Decatur, Ill.
F. S. Crawford, 421 Clark Ave., Clark's Summit, Pa.
H. J. Destiche, 811 S. Anna St., Pipestone, Minn.
D. K. French, 140 New Montgomery St., San Francisco, Cal.
C. F. Ebert, 215 Lake St., Marion, O.
H. D. Finch, Fruita, Col.
J. P. Madden, 217 Walnut St., Newton Lower Falls, Mass.
P. J. Messer, Chamber of Commerce, Durant, Okla.
G. J. Middaugh, 464 Lee Ave., Clarksburg, W. Va.
J. C. Randolph, 125 Randolph St. N.W., Washington, D. C.
H. I. Szymanski, 2236 Sherman Ave., Evanston, Ill.
C. D. Spangler, 553 Park Ave., Tyrone, Pa.
H. Z. Testers, 131 Zinn Place, Cincinnati, O.